



# **CERTIFICATION TEST REPORT**

**Report Number. :** 12607353-E6V2

**Applicant :** APPLE, INC.  
1 APPLE PARK WAY  
CUPERTINO, CA 95014, U.S.A.

**Model :** A2215

**FCC ID :** BCG-E3307A

**IC :** 579C-E3307A

**EUT Description :** SMARTPHONE

**Test Standard(s) :** FCC CFR47 PART 22H, 24E, 27L AND 90S  
ISED RSS-132 ISSUE 3, RSS-133 ISSUE 6 AND RSS-139 ISSUE 3

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Revision History

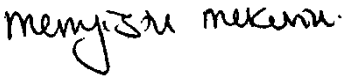
| Rev. | Issue Date | Revisions             | Revised By       |
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| V1   | 8/3/2019   | Initial Review        | Mengistu Mekuria |
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## 1. ATTESTATION OF TEST RESULTS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                      |                                                                                      |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|
| Applicant Name and Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | APPLE INC.<br>1 APPLE PARK WAY<br>CUPERTINO, CA. 95014, U.S.A.                                       |                                                                                      |  |
| Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | A2215                                                                                                |                                                                                      |  |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BCG-E3307A                                                                                           |                                                                                      |  |
| IC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 579C-E3307A                                                                                          |                                                                                      |  |
| EUT Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SMARTPHONE                                                                                           |                                                                                      |  |
| Serial Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | C39YV06LN2RW (Conducted) and C39YT01DN2RK (Radiated)                                                 |                                                                                      |  |
| Date Tested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MARCH 29, 2019 to JULY 05, 2019                                                                      |                                                                                      |  |
| Applicable Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FCC CFR 47 Part 22H, 24E, 27L, AND 90S<br>ISED RSS-132 ISSUE 3, RSS-133 ISSUE 6, AND RSS-139 ISSUE 3 |                                                                                      |  |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COMPLIES                                                                                             |                                                                                      |  |
| <p>UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p>The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.</p> <p>This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.</p> |                                                                                                      |                                                                                      |  |
| Approved & Released By:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                      | Prepared By:                                                                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                      |  |  |
| Mengistu Mekuria<br>Senior Test Engineer<br>UL Verification Services Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                      | Lieu Nguyen<br>Laboratory Engineer<br>UL Verification Services Inc.                  |  |

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, Part 22, Part 24, Part 27, and Part 90, FCC KDB 971168 D01 v03r01/ D02 v02r01, KDB 412172 D01 v01r01, ANSI C63.26:2015, IC RSS-132, RSS-133 and RSS-139.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street                                         | 47266 Benicia Street                              | 47658 Kato Rd.                                     |
|--------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> Chamber A (ISED:2324B-1)            | <input type="checkbox"/> Chamber D (ISED:22541-1) | <input type="checkbox"/> Chamber I (ISED: 2324A-5) |
| <input checked="" type="checkbox"/> Chamber B (ISED:2324B-2) | <input type="checkbox"/> Chamber E (ISED:22541-2) | <input type="checkbox"/> Chamber J (ISED: 2324A-6) |
| <input type="checkbox"/> Chamber C (ISED:2324B-3)            | <input type="checkbox"/> Chamber F (ISED:22541-3) | <input type="checkbox"/> Chamber K (ISED: 2324A-1) |
|                                                              | <input type="checkbox"/> Chamber G (ISED:22541-4) | <input type="checkbox"/> Chamber L (ISED: 2324A-3) |
|                                                              | <input type="checkbox"/> Chamber H (ISED:22541-5) |                                                    |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

#### RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)  
 $36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$

#### MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.  
 $36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                                | UNCERTAINTY |
|------------------------------------------|-------------|
| Conducted Disturbance, 9KHz to 0.15 MHz  | 3.84 dB     |
| Conducted Disturbance, 0.15 to 30 MHz    | 3.65 dB     |
| Radiated Disturbance, 9KHz to 30 MHz     | 2.52 dB     |
| Radiated Disturbance, 30 to 1000 MHz     | 4.88 dB     |
| Radiated Disturbance, 1000 to 18000 MHz  | 4.24 dB     |
| Radiated Disturbance, 18000 to 26000 MHz | 4.37 dB     |
| Radiated Disturbance, 26000 to 40000 MHz | 5.17 dB     |
| Occupied Channel Bandwidth               | ±0.39 %     |
| Temperature                              | ±0.9 °C     |
| Supply voltages                          | ±0.45 %     |
| Time                                     | ±0.02 %     |

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

EUT is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, TD-SCDMA, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wide band, GPS and NFC. All models support at least one UICC based SIM. The second SIM, if present, is either UICC based pSIM (physical SIM) or e-SIM (electronic SIM). The device has a built-in inductive charging receiver. The rechargeable battery is also not user accessible

### 5.2. MAXIMUM OUTPUT POWER

#### ERP/EIRP LIMIT

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635  
IC: RSS132§5.4; RSS133§6.4 and RSS139§6.5.

#### EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015  
KDB 971168 D01 Section 5.6

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and ERP/EIRP output powers as follows:

## GSM MODES

| RSS 132 850MHz            |            |                           |                    |           |       |       |              |                     |
|---------------------------|------------|---------------------------|--------------------|-----------|-------|-------|--------------|---------------------|
| Frequency range (MHz)     | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                           |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.2-848.8               | GPRS       | 33.2                      | -5.00              | 11.5      | 28.20 | 0.661 | 251.26       | 251KGXW             |
|                           | EGPRS      | 27.7                      |                    |           | 22.70 | 0.186 | 249.03       | 249KG7W             |
| Part 22 850MHz            |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)     | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                           |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.2-848.8               | GPRS       | 33.2                      | -5.00              | 7.0       | 26.05 | 0.403 | 251.26       | 251KGXW             |
|                           | EGPRS      | 27.7                      |                    |           | 20.55 | 0.114 | 249.03       | 249KG7W             |
| Part 24 / RSS 133 1900MHz |            |                           |                    |           |       |       |              |                     |
| Frequency range (MHz)     | Modulation | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                           |            |                           |                    |           | (dBm) | (W)   |              |                     |
| 1850.2-1909.8             | GPRS       | 31.2                      | -2.50              | 2.0       | 28.70 | 0.741 | 247.26       | 247KGXW             |
|                           | EGPRS      | 26.5                      |                    |           | 24.00 | 0.251 | 252.53       | 253KG7W             |

## CDMA MODES

| Part 90 BC10          |               |                           |                    |           |       |       |              |                     |
|-----------------------|---------------|---------------------------|--------------------|-----------|-------|-------|--------------|---------------------|
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 817.25-822.75         | 1xRTT         | 25.7                      | -5.00              | 100.0     | 18.55 | 0.072 | 1272.5       | 1M27F9W             |
|                       | 1xEV-DO Rev A | 25.6                      |                    |           | 18.45 | 0.070 | 1265.1       | 1M27F9W             |
| RSS 132 BC0           |               |                           |                    |           |       |       |              |                     |
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.7-848.31          | 1xRTT         | 25.7                      | -5.00              | 11.5      | 20.70 | 0.117 | 1267         | 1M27F9W             |
|                       | 1xEV-DO Rev A | 25.6                      |                    |           | 20.60 | 0.115 | 1266.4       | 1M27F9W             |
| Part 22 BC0           |               |                           |                    |           |       |       |              |                     |
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | ERP   |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 824.7-848.31          | 1xRTT         | 25.7                      | -5.00              | 7.0       | 18.55 | 0.072 | 1267         | 1M27F9W             |
|                       | 1xEV-DO Rev A | 25.6                      |                    |           | 18.45 | 0.070 | 1266.4       | 1M27F9W             |
| Part 24 / RSS 133 BC1 |               |                           |                    |           |       |       |              |                     |
| Frequency range (MHz) | Modulation    | Conducted (Average) (dBm) | Antenna Gain (dBi) | Limit (W) | EIRP  |       | 99% BW (kHz) | Emission Designator |
|                       |               |                           |                    |           | (dBm) | (W)   |              |                     |
| 1851.25-1908.75       | 1xRTT         | 25.7                      | -3.50              | 2.0       | 22.20 | 0.166 | 1279.8       | 1M28F9W             |
|                       | 1xEV-DO Rev A | 25.6                      |                    |           | 22.10 | 0.162 | 1267.6       | 1M27F9W             |

**WCDMA MODE**

| RSS 132 Band 5           |            |                              |                       |              |       |       |                 |                        |
|--------------------------|------------|------------------------------|-----------------------|--------------|-------|-------|-----------------|------------------------|
| Frequency range<br>(MHz) | Modulation | Conducted (Average)<br>(dBm) | Antenna Gain<br>(dBi) | Limit<br>(W) | EIRP  |       | 99% BW<br>(kHz) | Emission<br>Designator |
|                          |            |                              |                       |              | (dBm) | (W)   |                 |                        |
| 826.4-846.6              | REL 99     | 25.7                         | -5.00                 | 11.5         | 20.70 | 0.117 | 4070.4          | 4M07F9W                |
|                          | HSDPA      | 25.6                         |                       |              | 20.60 | 0.115 | 4060.7          | 4M06F9W                |
| Part 22 Band 5           |            |                              |                       |              |       |       |                 |                        |
| Frequency range<br>(MHz) | Modulation | Conducted (Average)<br>(dBm) | Antenna Gain<br>(dBi) | Limit<br>(W) | ERP   |       | 99% BW<br>(kHz) | Emission<br>Designator |
|                          |            |                              |                       |              | (dBm) | (W)   |                 |                        |
| 826.4-846.6              | REL 99     | 25.7                         | -5.00                 | 7.0          | 18.55 | 0.072 | 4070.4          | 4M07F9W                |
|                          | HSDPA      | 25.6                         |                       |              | 18.45 | 0.070 | 4060.7          | 4M06F9W                |
| Part 24 / RSS 133 Band 2 |            |                              |                       |              |       |       |                 |                        |
| Frequency range<br>(MHz) | Modulation | Conducted (Average)<br>(dBm) | Antenna Gain<br>(dBi) | Limit<br>(W) | ERP   |       | 99% BW<br>(kHz) | Emission<br>Designator |
|                          |            |                              |                       |              | (dBm) | (W)   |                 |                        |
| 1852.4-1907.6            | REL 99     | 25.0                         | -2.50                 | 2.0          | 22.50 | 0.178 | 4073            | 4M07F9W                |
|                          | HSDPA      | 25.0                         |                       |              | 22.50 | 0.178 | 4070.9          | 4M07F9W                |
| Part 27 / RSS 139 Band 4 |            |                              |                       |              |       |       |                 |                        |
| Frequency range<br>(MHz) | Modulation | Conducted (Average)<br>(dBm) | Antenna Gain<br>(dBi) | Limit<br>(W) | EIRP  |       | 99% BW<br>(kHz) | Emission<br>Designator |
|                          |            |                              |                       |              | (dBm) | (W)   |                 |                        |
| 1712.4-1752.6            | REL 99     | 25.0                         | -2.60                 | 1.0          | 22.40 | 0.174 | 4065.3          | 4M07F9W                |
|                          | HSDPA      | 24.9                         |                       |              | 22.30 | 0.170 | 4059.4          | 4M06F9W                |

### 5.3. SOFTWARE AND FIRMWARE

The EUT Firmware installed during testing was version: 19-01.1919.01\_27-0.22.00-27.

### 5.4. MAXIMUM ANTENNA GAIN

| Frequency Range (MHz) | ANT 1 Gain (dBi) | ANT 2 Gain (dBi) | ANT 3 Gain (dBi) | ANT 4 Gain (dBi) |
|-----------------------|------------------|------------------|------------------|------------------|
| 816 - 824             | -5.0             | -5.1             | N/A              | N/A              |
| 824 - 849             | -5.0             | -5.1             | N/A              | N/A              |
| 1850 - 1910           | -3.5             | -2.3             | -2.5             | -5.9             |
| 1710 - 1755           | -3.6             | -3.0             | -2.6             | -6.8             |

### 5.5. WORST-CASE CONFIGURATION AND MODE

Radiated test was investigated in three orthogonal orientations X, Y and Z on Ant. 1/Ant. 2 on Cell band and on Ant. 1, Ant. 2, Ant. 3, and Ant. 4 on AWS and PCS bands. For Ant 1, It was determined that Y(Landscape) orientation was the worst case orientation for Cell, AWS and PCS bands without AC/DC adapter. For Ant 2, It was determined that Y(Landscape) orientation for Cell band and X (Flatbed) orientations for AWS and PCS bands were the worst case orientation without AC/DC adapter. For Ant 3 and Ant 4, It was determined that X (Flatbed) orientation was the worst case orientation for Cell, AWS and PCS bands without AC/DC adapter.

Based on average conducted output power measurement investigations. The worst-case antenna ports, antenna ports with highest power, was used to perform all conducted tests.

The worst-case scenario for all measurements as followed:

Worst-case modes:

- GSM GPRS
- GSM EGPRS
- CDMA 2000 1xRTT
- CDMA 2000 1xEV-DO REV. A
- WCDMA REL 99
- WCDMA HSDPA

CDMA BC10 band is supported in USA only.

Radiated spurious emissions were investigated below 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found on below 30MHz and 30MHz-1GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GH WLAN, UWB, and Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |              |               |                  |
|------------------------|--------------|---------------|------------------|
| Description            | Manufacturer | Model         | Serial Number    |
| Laptop AC/DC adapter   | Apple        | 85W MagSafe 2 | C0651730MMM6P4AL |
| Laptop                 | Apple        | Macbook Pro   | C02PM012G3QD     |
| Laptop                 | Apple        | Macbook Pro   | C02P52HGG085     |

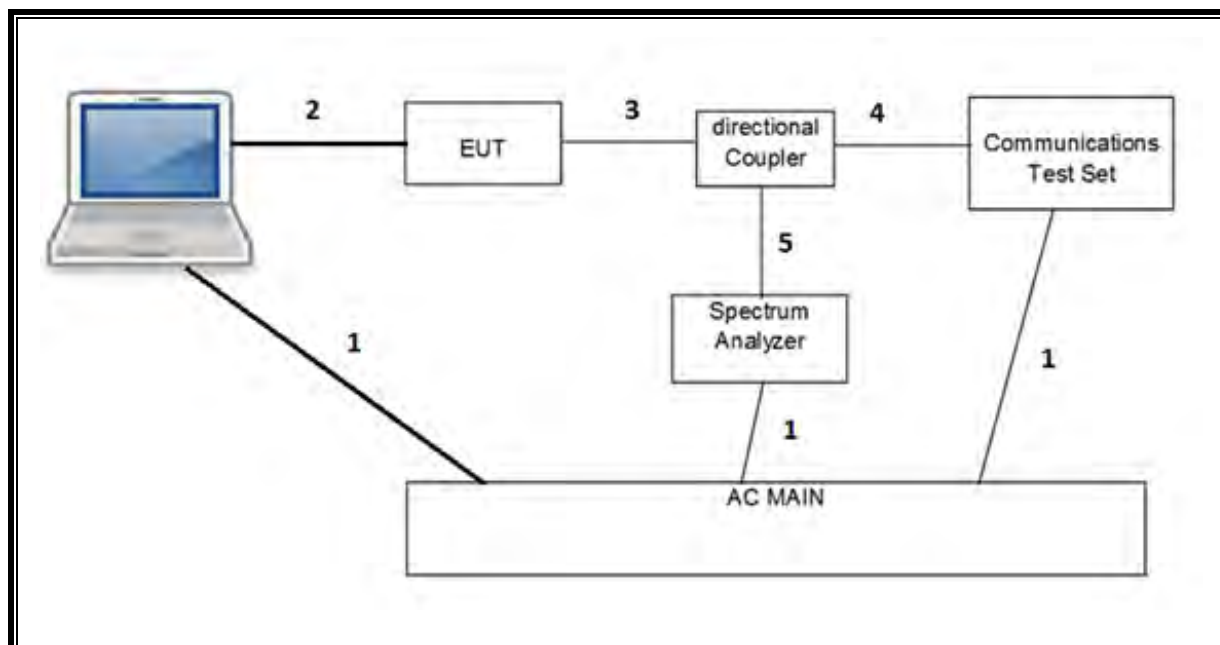
### I/O CABLES (RF Conducted Test)

| I/O Cable List |           |                      |                        |             |                  |         |
|----------------|-----------|----------------------|------------------------|-------------|------------------|---------|
| Cable No       | Port      | # of identical ports | Connector Type         | Cable Type  | Cable Length (m) | Remarks |
| 1              | AC        | 3                    | US 115V                | Un-shielded | 2.0m             | N/A     |
| 2              | USB       | 1                    | DC                     | Un-shielded | 1.0m             | N/A     |
| 3              | RF In/Out | 1                    | EUT                    | Un-shielded | 0.6m             | N/A     |
| 4              | RF In/Out | 1                    | Communication Test Set | Un-shielded | 1.2m             | N/A     |
| 5              | RF In/Out | 1                    | Barrel                 | N/A         | N/A              | N/A     |

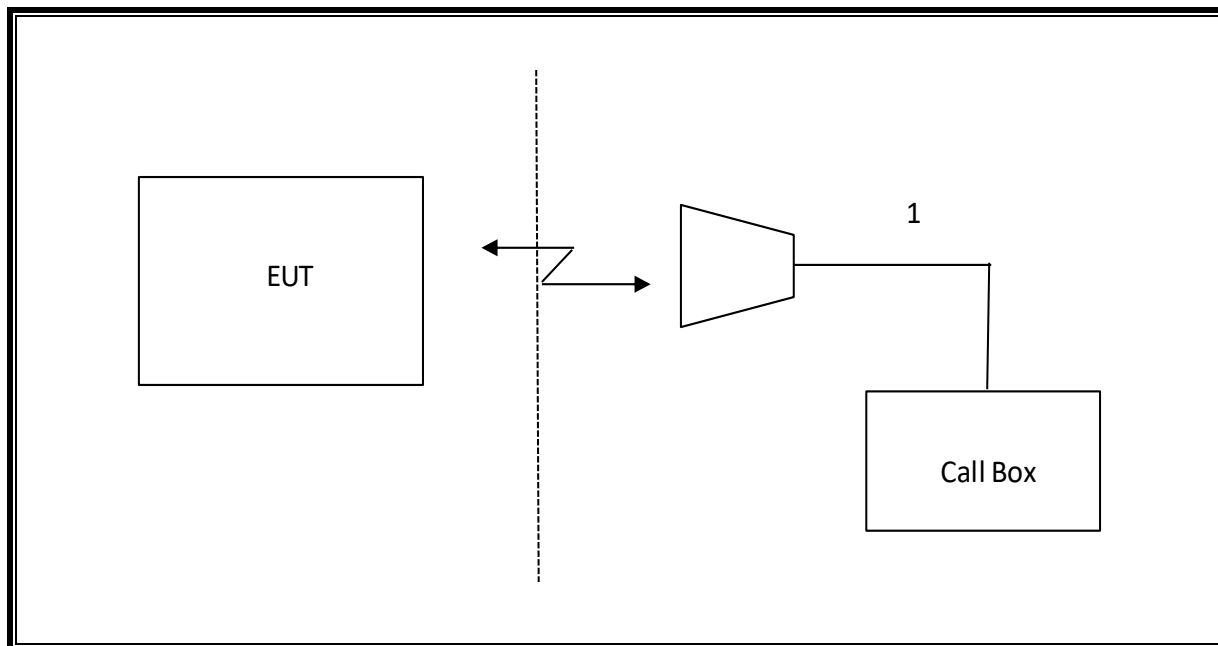
### I/O CABLES (RF Radiated Test)

| I/O Cable List |           |                      |                |             |                  |         |
|----------------|-----------|----------------------|----------------|-------------|------------------|---------|
| Cable No       | Port      | # of identical ports | Connector Type | Cable Type  | Cable Length (m) | Remarks |
| 1              | RF In/Out | 1                    | Antenna        | Un-shielded | 5.0m             | N/A     |

### CONDUCTED SETUP



### RADIATED SETUP



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| TEST EQUIPMENT LIST                              |                     |                        |                         |            |
|--------------------------------------------------|---------------------|------------------------|-------------------------|------------|
| Description                                      | Manufacturer        | Model                  | Asset                   | Cal Due    |
| Antenna, Horn 1-18GHz                            | ETS Lindgren        | 3117                   | T344                    | 05/07/2020 |
| Antenna, Horn 18-26GHz                           | ARA                 | MWH-1826/B             | T447                    | 6/16/2019  |
| Antenna, Horn 26-40GHz                           | ARA                 | MWH-2640/B             | T446                    | 8/9/2019   |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz      | Sunol Sciences      | JB3                    | PRE0181574              | 08/01/2019 |
| Amplifier, 10KHz to 1GHz, 32dB                   | Sonoma              | 310N                   | T15                     | 08/15/2019 |
| Amplifier, 18-26GHz                              | Agilent             | 8449B                  | T404                    | 3/23/2020  |
| Amplifier, 26-40GHz                              | Miteq               | TTA2640                | T1804                   | 3/23/2020  |
| Spectrum Analyzer, PXA 3Hz to 44GHZ              | Agilent             | N9030A                 | T905                    | 1/24/2020  |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T340                    | 01/22/2020 |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T1454                   | 01/23/2020 |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T908                    | 01/23/2020 |
| Spectrum Analyzer, PXA 3Hz to 44GHz              | Keysight            | N9030A                 | T339                    | 01/29/2020 |
| Amplifier, 1 to 18GHz                            | MITEQ               | AFS42-00101800-25-S-42 | T931                    | 05/11/2020 |
| Amplifier, 10KHz to 1GHz, 32dB                   | Sonoma              | 310N                   | PRE0180176              | 11/01/2019 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4446A                 | T177                    | 04/12/2019 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4446A                 | T123                    | 01/28/2020 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4440A                 | T198                    | 01/30/2020 |
| Spectrum Analyzer, PSA, 3Hz to 44GHz             | Keysight            | E4440A                 | T99                     | 1/28/2020  |
| Directional Coupler                              | KRYTAR              | 152610                 | T1536                   | 04/27/2019 |
| Directional Coupler                              | KRYTAR              | 152610                 | T1537                   | 04/27/2019 |
| Wireless Communications Test Set, 8960 Series 10 | Agilent             | E5515C                 | T211                    | 05/10/2020 |
| Filter, HPF 3.0GHz                               | Micro-Tronics       | HPM17543               | T487                    | 12/04/2019 |
| Filter, HPF 1.2GHz                               | Micro-Tronics       | WHKX1.2/15G-6ST        | T1182                   | 05/19/2019 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz             | Keysight            | N9030A                 | T459                    | 07/25/2019 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T959                    | 02/16/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T1871                   | 02/18/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T921                    | 02/18/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T376                    | 02/21/2020 |
| Wideband Communication Test Set, Call Box        | R&S GmbH & Co. KG   | CMW500                 | T958                    | 02/20/2020 |
| Chamber, Environmental                           | Cincinnati Sub Zero | ZPHS-8-3.5-SCT/WC      | T754                    | 08/15/2019 |
| Power Meter, P-series single channel             | Keysight            | N1911A                 | T1268                   | 01/31/2020 |
| Power Sensor                                     | Keysight            | N1921A                 | T1228                   | 07/10/2019 |
| Antenna, Horn 1-18GHz                            | ETS Lindgren        | T3117                  | T346                    | 05/14/2020 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz      | Sunol Sciences      | JB3                    | PRE0077974              | 05/13/2020 |
| Antenna, Active Loop 9KHz to 30MHz               | EMCO                | 6502                   | T1616                   | 10/18/2019 |
| UL AUTOMATION SOFTWARE                           |                     |                        |                         |            |
| CLT Software                                     | UL                  | UL RF                  | Ver 9.5, April 26, 2016 |            |
| Power Measurement Software                       | UL                  | UL RF                  | Ver 2.2, June 2017      |            |

### NOTES:

- For equipment listed above that had a calibration due during the testing period, its use was paused to allow for calibration.

## 7. RF OUTPUT POWER VERIFICATION

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted output powers as follows:

### 7.1. GSM

#### Using CMW500 Communication Test Set

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press **Connection control** to choose the different menus

Press **RESET** > choose all to reset all settings

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Connection | Press <b>Signal Off</b> to turn off the signal and change settings<br>Network Support > GSM+GPRS or GSM+EGPRS<br>Main Service > Packet Data<br>Service selection > Test Mode A – Auto Slot Config. off                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                 |
| MS Signal  | Press Slot Config bottom on the right twice to select and change the number of time slots and power setting<br>> Slot configuration      > Uplink/Gamma<br>> 33 dBm for GPRS 850/900<br>> 27 dBm for EGPRS 850/900<br>> 30 dBm for GPRS1800/1900<br>> 26 dBm for EGPRS1800/1900                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |
| BS Signal  | Enter the same channel number for TCH channel (test channel) and BCCH channel<br><br>Frequency Offset >      + 0 Hz<br>Mode >                      BCCH and TCH<br>BCCH Level >              -85 dBm (May need to adjust if link is not stable)<br>BCCH Channel >           choose desire test channel [Enter the same channel number for TCH<br>channel (test channel) and BCCH channel]<br><br>Channel Type >            Off<br>P0>                          4 dB<br>Slot Config >              Unchanged (if already set under MS Signal)<br>TCH >                        choose desired test channel<br>Hopping >                  Off<br>Main Timeslot >            3 (Default) |                                                 |
| Network    | Coding Scheme >          CS 4 (GPRS) and MCS5 (EGPRS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Bit Stream >               2E9-1PSR Bit Pattern |
| AF/RF      | Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                 |
| Connection | Press <b>Signal On</b> to turn on the signal and change settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                 |

## RESULT

### GSM 850

|     |       |       |           |
|-----|-------|-------|-----------|
| ID: | 12491 | Date: | 7/31/2019 |
|-----|-------|-------|-----------|

#### GPRS (GMSK) - Coding Scheme: CS1

| Band  | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |
|-------|--------|-------------|-------------------------------|---------|--------|---------|
|       |        |             | ANT 1                         |         | ANT 2  |         |
|       |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots |
| 850.0 | 128    | 824.2       | 33.2                          | 32.2    | 31.7   | 30.7    |
|       | 190    | 836.6       | 33.2                          | 32.2    | 31.5   | 30.6    |
|       | 251    | 848.8       | 33.2                          | 32.2    | 31.5   | 30.5    |

#### EGPRS (8PSK) - Coding Scheme: MCS5

| Band  | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |
|-------|--------|-------------|-------------------------------|---------|--------|---------|
|       |        |             | ANT 1                         |         | ANT 2  |         |
|       |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots |
| 850.0 | 128    | 824.2       | 27.7                          | 26.7    | 25.7   | 24.7    |
|       | 190    | 836.6       | 27.7                          | 26.0    | 25.0   | 24.5    |
|       | 251    | 848.8       | 27.3                          | 26.6    | 25.2   | 24.2    |

### GSM 1900

|     |       |       |           |
|-----|-------|-------|-----------|
| ID: | 12491 | Date: | 7/31/2019 |
|-----|-------|-------|-----------|

#### GPRS (GMSK) - Coding Scheme: CS1

| Band   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |        |         |        |         |
|--------|--------|-------------|-------------------------------|---------|--------|---------|--------|---------|--------|---------|
|        |        |             | ANT 1                         |         | ANT 2  |         | ANT 3  |         | ANT 4  |         |
|        |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots |
| 1900.0 | 512    | 1850.2      | 31.6                          | 30.7    | 29.2   | 26.5    | 31.2   | 31.0    | 29.0   | 25.7    |
|        | 661    | 1880.0      | 31.7                          | 30.6    | 29.0   | 26.3    | 31.3   | 30.5    | 28.8   | 26.0    |
|        | 810    | 1909.8      | 31.5                          | 30.6    | 29.1   | 26.4    | 31.2   | 30.6    | 28.7   | 25.8    |

#### EGPRS (8PSK) - Coding Scheme: MCS5

| Band   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |         |        |         |        |         |        |         |
|--------|--------|-------------|-------------------------------|---------|--------|---------|--------|---------|--------|---------|
|        |        |             | ANT 1                         |         | ANT 2  |         | ANT 3  |         | ANT 4  |         |
|        |        |             | 1 slot                        | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots | 1 slot | 2 slots |
| 1900.0 | 512    | 1850.2      | 26.7                          | 25.6    | 24.2   | 23.2    | 26.5   | 26.0    | 25.0   | 24.0    |
|        | 661    | 1880.0      | 26.6                          | 25.7    | 23.8   | 23.2    | 26.2   | 25.6    | 24.9   | 23.7    |
|        | 810    | 1909.8      | 26.4                          | 24.8    | 24.2   | 23.1    | 26.1   | 25.2    | 24.8   | 23.3    |

## 7.2. CDMA

Maximum output power is verified on the Low, Middle and High channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E for 1xRTT, section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rel. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A

### 1xRTT

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

| <u>Application</u> | <u>Rev, License</u> |
|--------------------|---------------------|
|--------------------|---------------------|

|                      |            |
|----------------------|------------|
| CDMA2000 Mobile Test | B.15.18, L |
|----------------------|------------|

- Protocol Rev > 6 (IS-2000-0)
- System ID: 18; NID: 65535, Reg. Ch. #: 610 for Cell, 600 for PCS & 450 for AWS
- Radio Config (RC) > RC1 or RC3
- Service Option (SO) Setup > SO55 or SO32
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

### 1xEV-DO - Release 0 (REL 0)

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

#### EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

#### EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

### **1xEV-DO - Revision A (REV A)**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

| <u>Application</u>    | <u>Rev, License</u> |
|-----------------------|---------------------|
| 1xEV-DO Terminal Test | A.09.13             |

#### **EVDO Rev. A – RETAP**

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
  - PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters
  - Sector ID > 00000000: 00000000: 00000000: 00000000
  - Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
  - ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

#### **EVDO Rev. A - FETAP**

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
  - PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000: 00000000: 00000000: 00000000
  - Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
  - ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

#### **CMW500**

### **1x Advanced Setup Procedures used to establish the test signals**

#### **Call box setup procedure**

- Protocol Rev > 6 (IS-2000-0)
- System ID: 331; NID: 65535, Reg. Ch. #.:
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

### **1xEV-DO Rev. B Setup Procedures used to establish the test signals**

#### **Call box setup procedure**

- CMW 500 Signal Generator > 1xEV-DO Taskbar Enable
- CMW 500 1xEV-DO Signaling Configuration Window >
- 1xEV-DO Signaling On Window:
  - Under Access Network Control:
  - Band Class: BC0: US Cellular
  - RF Channel: 31
  - 1xEV-DO Power: -70 dBm
  - Release B
- 1xEV-DO Signaling Configuration Window

Under RF Frequency Band / Channel: Enter Ch. Frequency

- Under Carrier Configuration: RF Frequency  
For Two Carriers: Low Channel (1013)

|             | <u>RF Channel</u> | <u>RF Channel Offset</u> |
|-------------|-------------------|--------------------------|
| Carrier [0] | 31                | 0                        |
| Carrier [1] | 1013              | 982                      |

- Under Carrier Configuration: RF Pilot

|           | <u>Carrier Sector</u> | <u>Active on AN</u> | <u>Assigned to AT</u> |
|-----------|-----------------------|---------------------|-----------------------|
| Pilot [0] | C0/S0                 | ✓                   | ✓                     |
|           | CA/S1                 | ✓                   | ✓                     |

For Three Carriers: Low Channel (1013)

|             | <u>RF Channel</u> | <u>RF Channel Offset</u> |
|-------------|-------------------|--------------------------|
| Carrier [0] | 72                | 0                        |
| Carrier [1] | 31                | -41                      |
| Carrier [2] | 1013              | 941                      |

- Under Carrier Configuration: RF Pilot

|           | <u>Carrier Sector</u> | <u>Active on AN</u> | <u>Assigned to AT</u> |
|-----------|-----------------------|---------------------|-----------------------|
| Pilot [0] | C0/S0                 | ✓                   | ✓                     |
| Pilot [1] | C1/S1                 | ✓                   | ✓                     |
| Pilot [2] | C2/S2                 | ✓                   | ✓                     |

- Rvs Power Ctrl > All Up bits (to get the maximum power)

## **RESULT**

**CDMA BC10**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 39004 | <b>Date:</b> | 4/30/2019 |
|------------|-------|--------------|-----------|

| Band             | Mode          | Configuration (RC)                  | Service Option (SO)   | Ch No. | Freq. (MHz) | Power (dBm) |       |
|------------------|---------------|-------------------------------------|-----------------------|--------|-------------|-------------|-------|
|                  |               |                                     |                       |        |             | ANT 1       | ANT 2 |
| BC10<br>(800MHz) | 1xRTT         | RC1                                 | 2 (Loopback)          | 450    | 817.25      | 25.5        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.4  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.5        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               | RC2                                 | 9 (Loopback)          | 450    | 817.25      | 25.5        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.7        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.5        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               | RC3                                 | 2 (Loopback)          | 450    | 817.25      | 25.4        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.4  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.5        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.5        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.5        | 24.4  |
|                  |               |                                     | 32 (+ F-SCH)          | 450    | 817.25      | 25.5        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               |                                     | 32 (+ SCH)            | 450    | 817.25      | 25.2        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.3        | 24.2  |
|                  |               |                                     |                       | 670    | 822.75      | 25.4        | 24.3  |
|                  |               | RC4                                 | 2 (Loopback)          | 450    | 817.25      | 25.5        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.4  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.4        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.5        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.4  |
|                  |               |                                     | 32 (+ F-SCH)          | 450    | 817.25      | 25.5        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               |                                     | 32 (+ SCH)            | 450    | 817.25      | 25.2        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.4        | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 25.3        | 24.3  |
|                  |               | RC5                                 | 9 (Loopback)          | 450    | 817.25      | 25.5        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               |                                     | 55 (Loopback)         | 450    | 817.25      | 25.6        | 24.5  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.5  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  | 1xAdvanced    | RC11                                | 2 (Loopback)          | 450    | 817.25      | 25.6        | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.5  |
|                  |               |                                     | 75 (Loopback)         | 450    | 817.25      | 25.6        | 24.4  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.4  |
|                  |               |                                     | 32 (+ F-SCH)          | 450    | 817.25      | 25.6        | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.4  |
|                  |               |                                     |                       | 670    | 822.75      | 25.6        | 24.4  |
|                  |               |                                     | 32 (+ SCH)            | 450    | 817.25      | 25.4        | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.4        | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 25.4        | 24.3  |
|                  | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK) | RTAP Rate: 153.6 kbps | 450    | 817.25      | 25.3        | 24.3  |
|                  |               |                                     |                       | 560    | 820.00      | 25.4        | 24.3  |
|                  |               |                                     |                       | 670    | 822.75      | 25.5        | 24.3  |
|                  | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK            | RETAP: 4096           | 450    | 817.25      | 25.5        | 24.2  |
|                  |               |                                     |                       | 560    | 820.00      | 25.6        | 24.1  |
|                  |               |                                     |                       | 670    | 822.75      | 25.4        | 24.1  |

**CDMA BC0**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 39004 | <b>Date:</b> | 4/30/2019 |
|------------|-------|--------------|-----------|

| Band            | Mode          | Radio Configuration (RC)            | Service Option (SO)   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |       |
|-----------------|---------------|-------------------------------------|-----------------------|--------|-------------|-------------------------------|-------|
|                 |               |                                     |                       |        |             | ANT 1                         | ANT 2 |
| BC0<br>(850MHz) | 1xRTT         | RC1                                 | 2 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.4  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.3  |
|                 |               |                                     | 55 (Loopback)         | 1013   | 824.70      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.4  |
|                 |               | RC2                                 | 9 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.7                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.6                          | 24.3  |
|                 |               |                                     | 55 (Loopback)         | 1013   | 824.70      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.4  |
|                 |               | RC3                                 | 2 (Loopback)          | 1013   | 824.70      | 25.5                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.4                          | 24.4  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.3  |
|                 |               |                                     | 55 (Loopback)         | 1013   | 824.70      | 25.5                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.4  |
|                 |               |                                     |                       | 777    | 848.31      | 25.3                          | 24.3  |
|                 |               |                                     | 32 (+ F-SCH)          | 1013   | 824.70      | 25.6                          | 24.4  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.4  |
|                 |               |                                     | 32 (+ SCH)            | 1013   | 824.70      | 25.3                          | 24.1  |
|                 |               |                                     |                       | 384    | 836.52      | 25.2                          | 24.3  |
|                 |               |                                     |                       | 777    | 848.31      | 25.1                          | 24.2  |
|                 |               | RC4                                 | 2 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.2  |
|                 |               |                                     |                       | 384    | 836.52      | 25.4                          | 24.4  |
|                 |               |                                     |                       | 777    | 848.31      | 25.3                          | 24.3  |
|                 |               |                                     | 55 (Loopback)         | 1013   | 824.70      | 25.5                          | 24.2  |
|                 |               |                                     |                       | 384    | 836.52      | 25.4                          | 24.4  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.3  |
|                 |               |                                     | 32 (+ F-SCH)          | 1013   | 824.70      | 25.6                          | 24.5  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.4  |
|                 |               |                                     | 32 (+ SCH)            | 1013   | 824.70      | 25.3                          | 24.1  |
|                 |               |                                     |                       | 384    | 836.52      | 25.1                          | 24.3  |
|                 |               |                                     |                       | 777    | 848.31      | 25.1                          | 24.1  |
|                 |               | RC5                                 | 9 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.4  |
|                 |               |                                     |                       | 384    | 836.52      | 25.6                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.5                          | 24.4  |
|                 |               |                                     | 55 (Loopback)         | 1013   | 824.70      | 25.6                          | 24.4  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.5  |
|                 |               |                                     |                       | 777    | 848.31      | 25.4                          | 24.4  |
|                 | 1xAdvanced    | RC11                                | 2 (Loopback)          | 1013   | 824.70      | 25.6                          | 24.2  |
|                 |               |                                     |                       | 384    | 836.52      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 777    | 848.31      | 25.6                          | 24.2  |
|                 |               |                                     | 75 (Loopback)         | 1013   | 824.70      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.5                          | 24.3  |
|                 |               |                                     |                       | 777    | 848.31      | 25.6                          | 24.3  |
|                 |               |                                     | 32 (+ F-SCH)          | 1013   | 824.70      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 384    | 836.52      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 777    | 848.31      | 25.6                          | 24.3  |
|                 |               |                                     | 32 (+ SCH)            | 1013   | 824.70      | 25.5                          | 24.1  |
|                 |               |                                     |                       | 384    | 836.52      | 25.3                          | 24.2  |
|                 |               |                                     |                       | 777    | 848.31      | 25.5                          | 24.1  |
|                 | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK) | RTAP Rate: 153.6 kbps | 1013   | 824.70      | 25.4                          | 24.1  |
|                 | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK            | RETAP: 4096           | 384    | 836.52      | 25.5                          | 24.1  |
|                 |               |                                     |                       | 777    | 848.31      | 25.2                          | 24.4  |
|                 |               |                                     |                       | 1013   | 824.70      | 25.3                          | 24.2  |
|                 |               |                                     |                       | 384    | 836.52      | 25.6                          | 24.3  |
|                 |               |                                     |                       | 777    | 848.31      | 25.1                          | 24.2  |

**CDMA BC1**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 39004 | <b>Date:</b> | 4/30/2019 |
|------------|-------|--------------|-----------|

| Band             | Mode          | Radio Configuration (RC)            | Service Option (SO)   | Ch No. | Freq. (MHz) | Conducted Average Power (dBm) |       |
|------------------|---------------|-------------------------------------|-----------------------|--------|-------------|-------------------------------|-------|
|                  |               |                                     |                       |        |             | ANT 1                         | ANT 2 |
| BC1<br>(1900MHz) | 1xRTT         | RC1                                 | 2 (Loopback)          | 25     | 1851.25     | 25.6                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.2                          | 20.5  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.3                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.4                          | 20.5  |
|                  |               | RC2                                 | 9 (Loopback)          | 25     | 1851.25     | 25.7                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.6                          | 20.5  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.3                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.2                          | 20.5  |
|                  |               | RC3                                 | 2 (Loopback)          | 25     | 1851.25     | 25.3                          | 20.4  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.3                          | 20.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.2                          | 20.4  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.2                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.3                          | 20.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.1                          | 20.4  |
|                  |               |                                     | 32 (+ F-SCH)          | 25     | 1851.25     | 25.5                          | 20.4  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.6                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.5                          | 20.4  |
|                  |               |                                     | 32 (+ SCH)            | 25     | 1851.25     | 25.1                          | 20.0  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.3                          | 20.1  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.2                          | 20.1  |
|                  |               | RC4                                 | 2 (Loopback)          | 25     | 1851.25     | 25.3                          | 20.4  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.2                          | 20.4  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.3                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.3                          | 20.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.1                          | 20.4  |
|                  |               |                                     | 32 (+ F-SCH)          | 25     | 1851.25     | 25.5                          | 20.4  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.6                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.5                          | 20.4  |
|                  |               |                                     | 32 (+ SCH)            | 25     | 1851.25     | 25.2                          | 20.0  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.2                          | 20.1  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.2                          | 20.1  |
|                  |               | RC5                                 | 9 (Loopback)          | 25     | 1851.25     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.5                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.3                          | 20.5  |
|                  |               |                                     | 55 (Loopback)         | 25     | 1851.25     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.5  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.3                          | 20.5  |
|                  | 1xAdvanced    | RC11                                | 2 (Loopback)          | 25     | 1851.25     | 25.5                          | 19.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 19.6  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.4                          | 19.6  |
|                  |               |                                     | 75 (Loopback)         | 25     | 1851.25     | 25.5                          | 19.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.5                          | 19.6  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.5                          | 19.6  |
|                  |               |                                     | 32 (+ F-SCH)          | 25     | 1851.25     | 25.5                          | 19.5  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.5                          | 19.6  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.5                          | 19.6  |
|                  |               |                                     | 32 (+ SCH)            | 25     | 1851.25     | 25.5                          | 20.4  |
|                  |               |                                     |                       | 600    | 1880.00     | 25.4                          | 20.4  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.4                          | 20.4  |
|                  | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK) | RTAP Rate: 153.6 kbps | 25     | 1851.25     | 25.4                          | 19.9  |
|                  | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK            | RETAP: 4096           | 600    | 1880        | 25.5                          | 20.0  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.5                          | 20.1  |
|                  |               |                                     |                       | 25     | 1851.25     | 25.4                          | 19.8  |
|                  |               |                                     |                       | 600    | 1880        | 25.6                          | 19.9  |
|                  |               |                                     |                       | 1175   | 1908.75     | 25.5                          | 19.8  |

## 7.3. WCDMA

### TEST PROCEDURE

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW  $\geq$  RBW  $\geq$  26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

### REL 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

| Mode                   | Subtest                 | Rel99        |
|------------------------|-------------------------|--------------|
| WCDMA General Settings | Loopback Mode           | Test Mode 2  |
|                        | Rel99 RMC               | 12.2kbps RMC |
|                        | Power Control Algorithm | Algorithm2   |
|                        | $\beta_c/\beta_d$       | 8/15         |

### HSDPA REL 5

The following 4 Sub-tests were completed according to Release 5 procedures in table C.10.1.4 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

**Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH**

| Sub-test | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{hs}$<br>(Note 1,<br>Note 2) | CM (dB)<br>(Note 3) | MPR (dB)<br>(Note 3) |
|----------|-------------------|-------------------|-------------------|-------------------|-------------------------------------|---------------------|----------------------|
| 1        | 2/15              | 15/15             | 64                | 2/15              | 4/15                                | 0.0                 | 0.0                  |
| 2        | 12/15<br>(Note 4) | 15/15<br>(Note 4) | 64                | 12/15<br>(Note 4) | 24/15                               | 1.0                 | 0.0                  |
| 3        | 15/15             | 8/15              | 64                | 15/8              | 30/15                               | 1.5                 | 0.5                  |
| 4        | 15/15             | 4/15              | 64                | 15/4              | 30/15                               | 1.5                 | 0.5                  |

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{hs} = 24/15 * \beta_c$ .

Note 3: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

## HSUPA REL 6

The following 5 Sub-tests were completed according to Release 6 procedures in table C.11.1.3 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

| Sub-test | $\beta_c$      | $\beta_d$      | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note 1) | $\beta_{ec}$ | $\beta_{ed}$ (Note 4) (Note 5)                 | $\beta_{ed}$ (SF) | $\beta_{ed}$ (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) (Note 6) | AG Index (Note 5) | E-TFCI |
|----------|----------------|----------------|----------------|-------------------|-----------------------|--------------|------------------------------------------------|-------------------|----------------------|------------------|----------------------------|-------------------|--------|
| 1        | 11/15 (Note 3) | 15/15 (Note 3) | 64             | 11/15 (Note 3)    | 22/15                 | 209/25       | 1309/225                                       | 4                 | 1                    | 1.0              | 0.0                        | 20                | 75     |
| 2        | 6/15           | 15/15          | 64             | 6/15              | 12/15                 | 12/15        | 94/75                                          | 4                 | 1                    | 3.0              | 2.0                        | 12                | 67     |
| 3        | 15/15          | 9/15           | 64             | 15/9              | 30/15                 | 30/15        | $\beta_{ed1}$ : 47/15<br>$\beta_{ed2}$ : 47/15 | 4                 | 2                    | 2.0              | 1.0                        | 15                | 92     |
| 4        | 2/15           | 15/15          | 64             | 2/15              | 4/15                  | 2/15         | 56/75                                          | 4                 | 1                    | 3.0              | 2.0                        | 17                | 71     |
| 5        | 15/15          | 0              | -              | -                 | 5/15                  | 5/15         | 47/15                                          | 4                 | 1                    | 1.0              | 0.0                        | 12                | 67     |

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{hs} = 5/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

## DUAL CARRIER HSDPA (DC-HSDPA (REL 8, CAT 24))

The following 4 Sub-tests for DC-HSDPA were completed according to Release 8 procedures in table C08.1.12 of 3GPP TS 34.121-1. A summary of subtest settings are illustrated below:

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter                                                                                                                                              | Unit      | Value |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| Nominal Avg. Inf. Bit Rate                                                                                                                             | kbps      | 60    |
| Inter-TTI Distance                                                                                                                                     | TTI's     | 1     |
| Number of HARQ Processes                                                                                                                               | Processes | 6     |
| Information Bit Payload ( $N_{INF}$ )                                                                                                                  | Bits      | 120   |
| Number Code Blocks                                                                                                                                     | Blocks    | 1     |
| Binary Channel Bits Per TTI                                                                                                                            | Bits      | 960   |
| Total Available SML's in UE                                                                                                                            | SML's     | 19200 |
| Number of SML's per HARQ Proc.                                                                                                                         | SML's     | 3200  |
| Coding Rate                                                                                                                                            |           | 0.15  |
| Number of Physical Channel Codes                                                                                                                       | Codes     | 1     |
| Modulation                                                                                                                                             |           | QPSK  |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.               |           |       |
| Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. |           |       |

## RESULT

**WCDMA BAND 5**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 39004 | <b>Date:</b> | 4/30/2019 |
|------------|-------|--------------|-----------|

| Band                   | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Conducted Average Power (dBm) |       |
|------------------------|----------|----------------|-----------|-------------|----------|-------------------------------|-------|
|                        |          |                |           |             |          | ANT 1                         | ANT 2 |
| W-CDMA Band 5 (850MHz) | Rel 99   | RMC, 12.2 kbps | 4132      | 826.4       | N/A      | 25.7                          | 24.5  |
|                        |          |                | 4183      | 836.6       | N/A      | 25.5                          | 24.5  |
|                        |          |                | 4233      | 846.6       | N/A      | 25.5                          | 24.5  |
|                        | HSDPA    | Subtest 1      | 4132      | 826.4       | 0        | 25.6                          | 24.5  |
|                        |          |                | 4183      | 836.6       | 0        | 25.5                          | 24.5  |
|                        |          |                | 4233      | 846.6       | 0        | 25.4                          | 24.4  |
|                        |          | Subtest 2      | 4132      | 826.4       | 0        | 25.2                          | 24.1  |
|                        |          |                | 4183      | 836.6       | 0        | 25.1                          | 24.1  |
|                        |          |                | 4233      | 846.6       | 0        | 25.0                          | 24.0  |
|                        |          | Subtest 3      | 4132      | 826.4       | 0.5      | 24.8                          | 23.7  |
|                        |          |                | 4183      | 836.6       | 0.5      | 24.7                          | 23.6  |
|                        |          |                | 4233      | 846.6       | 0.5      | 24.7                          | 23.6  |
|                        |          | Subtest 4      | 4132      | 826.4       | 0.5      | 24.6                          | 23.4  |
|                        |          |                | 4183      | 836.6       | 0.5      | 24.4                          | 23.3  |
|                        |          |                | 4233      | 846.6       | 0.5      | 24.4                          | 23.4  |
|                        | HSUPA    | Subtest 1      | 4132      | 826.4       | 0        | 25.3                          | 24.1  |
|                        |          |                | 4183      | 836.6       | 0        | 25.2                          | 24.0  |
|                        |          |                | 4233      | 846.6       | 0        | 25.1                          | 24.0  |
|                        |          | Subtest 2      | 4132      | 826.4       | 2        | 24.1                          | 23.0  |
|                        |          |                | 4183      | 836.6       | 2        | 24.0                          | 23.0  |
|                        |          |                | 4233      | 846.6       | 2        | 23.9                          | 23.0  |
|                        |          | Subtest 3      | 4132      | 826.4       | 1        | 24.9                          | 24.1  |
|                        |          |                | 4183      | 836.6       | 1        | 24.8                          | 24.1  |
|                        |          |                | 4233      | 846.6       | 1        | 24.8                          | 24.1  |
|                        |          | Subtest 4      | 4132      | 826.4       | 2        | 24.4                          | 23.3  |
|                        |          |                | 4183      | 836.6       | 2        | 24.3                          | 23.3  |
|                        |          |                | 4233      | 846.6       | 2        | 24.1                          | 23.2  |
|                        |          | Subtest 5      | 4132      | 826.4       | 0        | 25.1                          | 23.9  |
|                        |          |                | 4183      | 836.6       | 0        | 24.9                          | 23.9  |
|                        |          |                | 4233      | 846.6       | 0        | 24.8                          | 23.9  |
|                        | DC-HSDPA | Subtest 1      | 4132      | 826.4       | 0        | 25.5                          | 24.5  |
|                        |          |                | 4183      | 836.6       | 0        | 25.5                          | 24.5  |
|                        |          |                | 4233      | 846.6       | 0        | 25.4                          | 24.4  |
|                        |          | Subtest 2      | 4132      | 826.4       | 0        | 25.5                          | 24.4  |
|                        |          |                | 4183      | 836.6       | 0        | 25.5                          | 24.4  |
|                        |          |                | 4233      | 846.6       | 0        | 25.3                          | 24.3  |
|                        |          | Subtest 3      | 4132      | 826.4       | 0.5      | 25.2                          | 24.1  |
|                        |          |                | 4183      | 836.6       | 0.5      | 25.1                          | 24.0  |
|                        |          |                | 4233      | 846.6       | 0.5      | 25.0                          | 23.9  |
|                        |          | Subtest 4      | 4132      | 826.4       | 0.5      | 25.2                          | 24.1  |
|                        |          |                | 4183      | 836.6       | 0.5      | 25.1                          | 24.0  |
|                        |          |                | 4233      | 846.6       | 0.5      | 24.9                          | 23.9  |

**WCDMA BAND 2**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 39004 | <b>Date:</b> | 4/30/2019 |
|------------|-------|--------------|-----------|

| Band                    | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Conducted Average Power (dBm) |       |       |       |
|-------------------------|----------|----------------|-----------|-------------|----------|-------------------------------|-------|-------|-------|
|                         |          |                |           |             |          | ANT 1                         | ANT 2 | ANT 3 | ANT 4 |
| W-CDMA Band 2 (1900MHz) | Rel 99   | RMC, 12.2 kbps | 9262      | 1852.4      | N/A      | 25.6                          | 20.2  | 24.7  | 19.7  |
|                         |          |                | 9400      | 1880.0      | N/A      | 25.7                          | 20.1  | 25.0  | 19.9  |
|                         |          |                | 9538      | 1907.6      | N/A      | 25.6                          | 20.3  | 24.9  | 19.9  |
|                         | HSDPA    | Subtest 1      | 9262      | 1852.4      | 0        | 25.6                          | 20.1  | 24.7  | 19.7  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.7                          | 20.1  | 24.9  | 19.9  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.7                          | 20.3  | 24.9  | 20.0  |
|                         |          | Subtest 2      | 9262      | 1852.4      | 0        | 25.1                          | 19.7  | 24.2  | 19.5  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.3                          | 19.7  | 24.5  | 19.7  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.2                          | 19.9  | 24.4  | 19.7  |
|                         |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 24.8                          | 19.3  | 23.9  | 19.3  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 24.9                          | 19.4  | 24.2  | 19.4  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 24.8                          | 19.5  | 24.0  | 19.5  |
|                         |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 24.4                          | 19.0  | 23.6  | 19.0  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 24.6                          | 19.1  | 23.9  | 19.2  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 24.6                          | 19.2  | 23.8  | 19.2  |
|                         | HSUPA    | Subtest 1      | 9262      | 1852.4      | 0        | 24.8                          | 19.9  | 24.0  | 19.4  |
|                         |          |                | 9400      | 1880.0      | 0        | 24.9                          | 19.8  | 24.2  | 19.7  |
|                         |          |                | 9538      | 1907.6      | 0        | 24.9                          | 20.0  | 24.1  | 19.7  |
|                         |          | Subtest 2      | 9262      | 1852.4      | 2        | 22.9                          | 17.7  | 22.1  | 17.3  |
|                         |          |                | 9400      | 1880.0      | 2        | 23.1                          | 17.7  | 22.3  | 17.5  |
|                         |          |                | 9538      | 1907.6      | 2        | 23.1                          | 17.8  | 22.3  | 17.4  |
|                         |          | Subtest 3      | 9262      | 1852.4      | 1        | 23.9                          | 18.5  | 23.3  | 18.2  |
|                         |          |                | 9400      | 1880.0      | 1        | 23.9                          | 18.5  | 23.5  | 18.5  |
|                         |          |                | 9538      | 1907.6      | 1        | 23.9                          | 18.6  | 23.4  | 18.4  |
|                         |          | Subtest 4      | 9262      | 1852.4      | 2        | 23.2                          | 17.9  | 22.3  | 17.5  |
|                         |          |                | 9400      | 1880.0      | 2        | 23.3                          | 17.9  | 22.6  | 17.8  |
|                         |          |                | 9538      | 1907.6      | 2        | 23.2                          | 18.0  | 22.5  | 17.7  |
|                         |          | Subtest 5      | 9262      | 1852.4      | 0        | 24.9                          | 19.5  | 24.1  | 19.2  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.0                          | 19.5  | 24.3  | 19.4  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.0                          | 19.9  | 24.2  | 19.4  |
|                         | DC-HSDPA | Subtest 1      | 9262      | 1852.4      | 0        | 25.6                          | 20.3  | 24.7  | 19.7  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.7                          | 20.3  | 25.0  | 20.0  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.6                          | 20.5  | 24.9  | 20.0  |
|                         |          | Subtest 2      | 9262      | 1852.4      | 0        | 25.4                          | 20.2  | 24.6  | 19.7  |
|                         |          |                | 9400      | 1880.0      | 0        | 25.6                          | 20.2  | 24.8  | 20.0  |
|                         |          |                | 9538      | 1907.6      | 0        | 25.5                          | 20.4  | 24.7  | 20.0  |
|                         |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 25.1                          | 20.0  | 24.3  | 19.6  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 25.3                          | 20.0  | 24.6  | 19.7  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 25.2                          | 20.1  | 24.5  | 19.7  |
|                         |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 25.1                          | 19.9  | 24.3  | 19.5  |
|                         |          |                | 9400      | 1880.0      | 0.5      | 25.3                          | 19.9  | 24.5  | 19.7  |
|                         |          |                | 9538      | 1907.6      | 0.5      | 25.2                          | 20.1  | 24.4  | 19.7  |

**WCDMA BAND 4**

|            |       |              |           |
|------------|-------|--------------|-----------|
| <b>ID:</b> | 39004 | <b>Date:</b> | 4/30/2019 |
|------------|-------|--------------|-----------|

| Band                    | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Conducted Average Power (dBm) |       |       |       |
|-------------------------|----------|----------------|-----------|-------------|----------|-------------------------------|-------|-------|-------|
|                         |          |                |           |             |          | ANT 1                         | ANT 2 | ANT 3 | ANT 4 |
| W-CDMA Band 4 (1700MHz) | Rel 99   | RMC, 12.2 kbps | 1312      | 1712.4      | N/A      | 25.6                          | 22.0  | 24.7  | 21.9  |
|                         |          |                | 1413      | 1732.6      | N/A      | 25.6                          | 21.9  | 24.9  | 22.0  |
|                         |          |                | 1513      | 1752.6      | N/A      | 25.7                          | 21.9  | 25.0  | 22.2  |
|                         | HSDPA    | Subtest 1      | 1312      | 1712.4      | 0        | 25.6                          | 21.9  | 24.7  | 21.9  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.6                          | 22.0  | 24.9  | 22.0  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.7                          | 21.8  | 24.9  | 22.2  |
|                         |          | Subtest 2      | 1312      | 1712.4      | 0        | 25.2                          | 21.4  | 24.3  | 21.6  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.2                          | 21.4  | 24.5  | 21.7  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.2                          | 21.3  | 24.5  | 21.9  |
|                         |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 24.8                          | 21.0  | 23.9  | 21.4  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 24.8                          | 21.0  | 24.2  | 21.4  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 24.8                          | 21.0  | 24.1  | 21.7  |
|                         |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 24.5                          | 20.8  | 23.6  | 21.1  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 24.6                          | 20.8  | 23.9  | 21.2  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 24.5                          | 20.7  | 23.8  | 21.5  |
|                         | HSUPA    | Subtest 1      | 1312      | 1712.4      | 0        | 24.9                          | 21.6  | 24.0  | 21.6  |
|                         |          |                | 1413      | 1732.6      | 0        | 24.9                          | 21.6  | 24.2  | 21.7  |
|                         |          |                | 1513      | 1752.6      | 0        | 24.9                          | 21.5  | 24.1  | 21.9  |
|                         |          | Subtest 2      | 1312      | 1712.4      | 2        | 23.0                          | 19.4  | 22.1  | 19.6  |
|                         |          |                | 1413      | 1732.6      | 2        | 23.0                          | 19.3  | 22.4  | 19.6  |
|                         |          |                | 1513      | 1752.6      | 2        | 23.0                          | 19.3  | 22.3  | 19.8  |
|                         |          | Subtest 3      | 1312      | 1712.4      | 1        | 23.8                          | 20.2  | 23.2  | 20.3  |
|                         |          |                | 1413      | 1732.6      | 1        | 23.8                          | 20.2  | 23.5  | 20.4  |
|                         |          |                | 1513      | 1752.6      | 1        | 23.8                          | 20.1  | 23.4  | 20.6  |
|                         |          | Subtest 4      | 1312      | 1712.4      | 2        | 23.2                          | 19.6  | 22.3  | 19.8  |
|                         |          |                | 1413      | 1732.6      | 2        | 23.2                          | 19.6  | 22.6  | 19.8  |
|                         |          |                | 1513      | 1752.6      | 2        | 23.2                          | 19.5  | 22.5  | 20.1  |
|                         |          | Subtest 5      | 1312      | 1712.4      | 0        | 25.0                          | 21.3  | 24.0  | 21.4  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.0                          | 21.4  | 24.3  | 21.4  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.0                          | 21.3  | 24.2  | 21.7  |
|                         | DC-HSDPA | Subtest 1      | 1312      | 1712.4      | 0        | 25.6                          | 22.0  | 24.7  | 21.9  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.6                          | 22.0  | 24.9  | 21.9  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.6                          | 21.9  | 24.9  | 22.2  |
|                         |          | Subtest 2      | 1312      | 1712.4      | 0        | 25.5                          | 21.8  | 24.5  | 21.8  |
|                         |          |                | 1413      | 1732.6      | 0        | 25.5                          | 21.8  | 24.8  | 21.9  |
|                         |          |                | 1513      | 1752.6      | 0        | 25.5                          | 21.7  | 24.7  | 22.2  |
|                         |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 25.2                          | 21.5  | 24.2  | 21.6  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 25.2                          | 21.4  | 24.5  | 21.7  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 25.2                          | 21.4  | 24.4  | 21.9  |
|                         |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 25.2                          | 21.5  | 24.2  | 21.6  |
|                         |          |                | 1413      | 1732.6      | 0.5      | 25.2                          | 21.4  | 24.5  | 21.7  |
|                         |          |                | 1513      | 1752.6      | 0.5      | 25.1                          | 21.4  | 24.3  | 22.0  |

## 8. CONDUCTED TEST RESULTS

### 8.1. OCCUPIED BANDWIDTH

#### RULE PART(S)

FCC: §2.1049  
IC: RSS132; RSS133§2.3; RSS139

#### LIMITS

For reporting purposes only.

#### TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

#### RESULTS

There is no limit required and power is the same for low, middle and high channel; therefore, only middle channel was tested.

### GSM

| Band    | ModuANTion | Channel | f(MHz) | 99% BW (KHz) | -26dB BW (KHz) |
|---------|------------|---------|--------|--------------|----------------|
| 850MHz  | GPRS       | 190     | 836.6  | 251.26       | 323.1          |
|         | EGPRS      |         |        | 249.03       | 310.9          |
| 1900MHz | GPRS       | 661     | 1880.0 | 247.26       | 322.2          |
|         | EGPRS      |         |        | 252.53       | 323.1          |

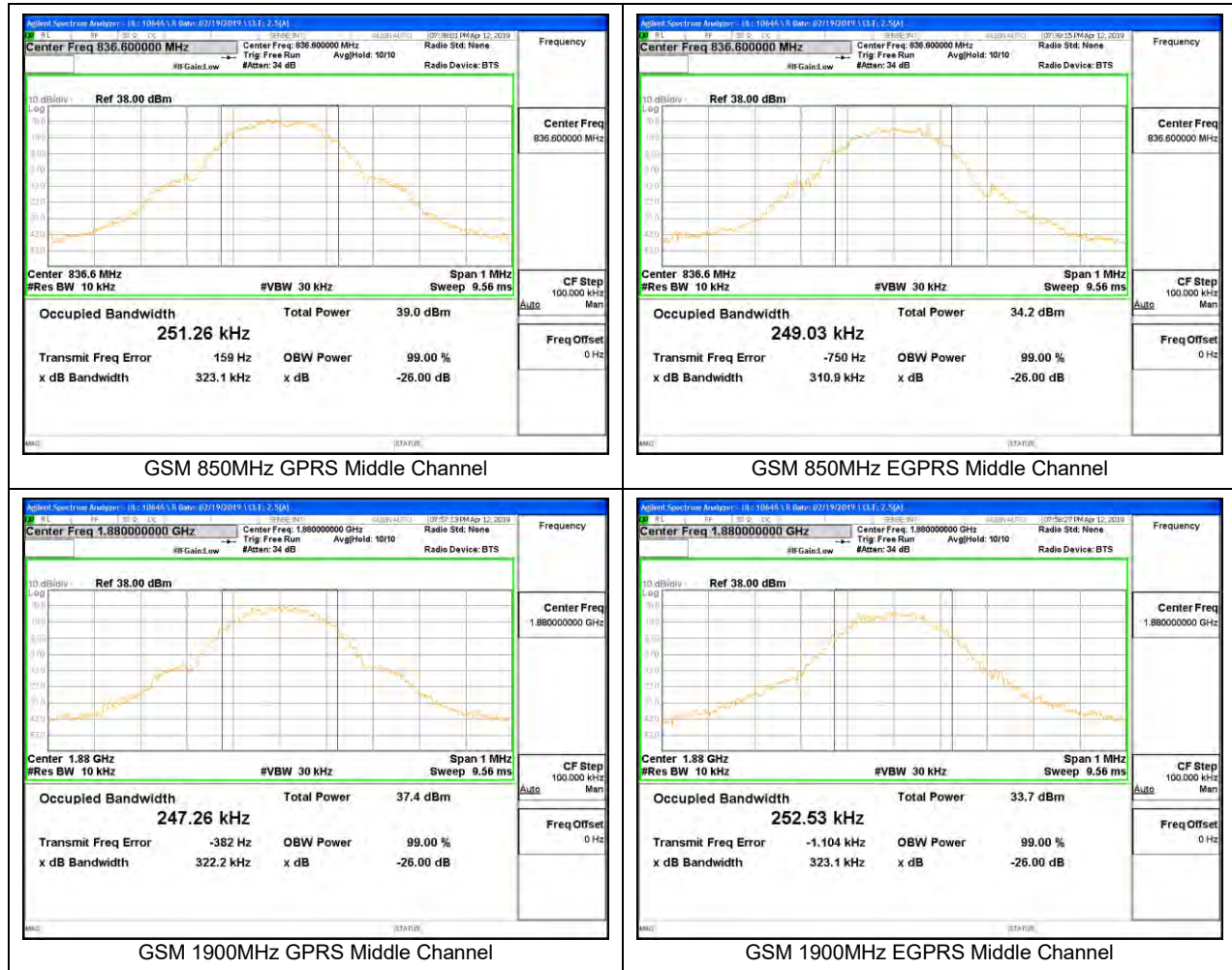
### CDMA

| Band | ModuANTion    | Channel | f(MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|------|---------------|---------|--------|--------------|----------------|
| BC10 | 1xRTT         | 560     | 820.0  | 1.2725       | 1.425          |
|      | 1xEV-DO Rev A |         |        | 1.2651       | 1.416          |
| BC0  | 1xRTT         | 384     | 836.5  | 1.2670       | 1.426          |
|      | 1xEV-DO Rev A |         |        | 1.2664       | 1.417          |
| BC1  | 1xRTT         | 600     | 1880.0 | 1.2798       | 1.432          |
|      | 1xEV-DO Rev A |         |        | 1.2676       | 1.431          |

### WCDMA

| Band   | ModuANTion | Channel | f(MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|--------|------------|---------|--------|--------------|----------------|
| BAND 5 | REL 99     | 4408    | 836.6  | 4.0704       | 4.600          |
|        | HSDPA      |         |        | 4.0607       | 4.591          |
| BAND 2 | REL 99     | 9800    | 1880.0 | 4.0730       | 4.608          |
|        | HSDPA      |         |        | 4.0709       | 4.616          |
| BAND 4 | REL 99     | 1638    | 1732.6 | 4.0653       | 4.596          |
|        | HSDPA      |         |        | 4.0594       | 4.599          |

### 8.1.1. GSM



## 8.1.2. CDMA



### 8.1.3. WCDMA



WCDMA Band 5 Rel 99 Middle Channel



WCDMA Band 5 HSDPA Middle Channel



WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

## 8.2. BAND EDGE AND EMISSION MASK

### RULE PART(S)

FCC: §2.1051, §22.917, §24.238, §27.53 and §90.691  
IC: RSS132§5.5; RSS133§6.5 and RSS139§6.6

### LIMITS

FCC: §22.917, §24.238, §27.53 (h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

#### RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

#### RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

#### RSS139§6.6

- (i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, Footnote 2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.
- (ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} p$  (watts) dB.

## **TEST PROCEDURE**

The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

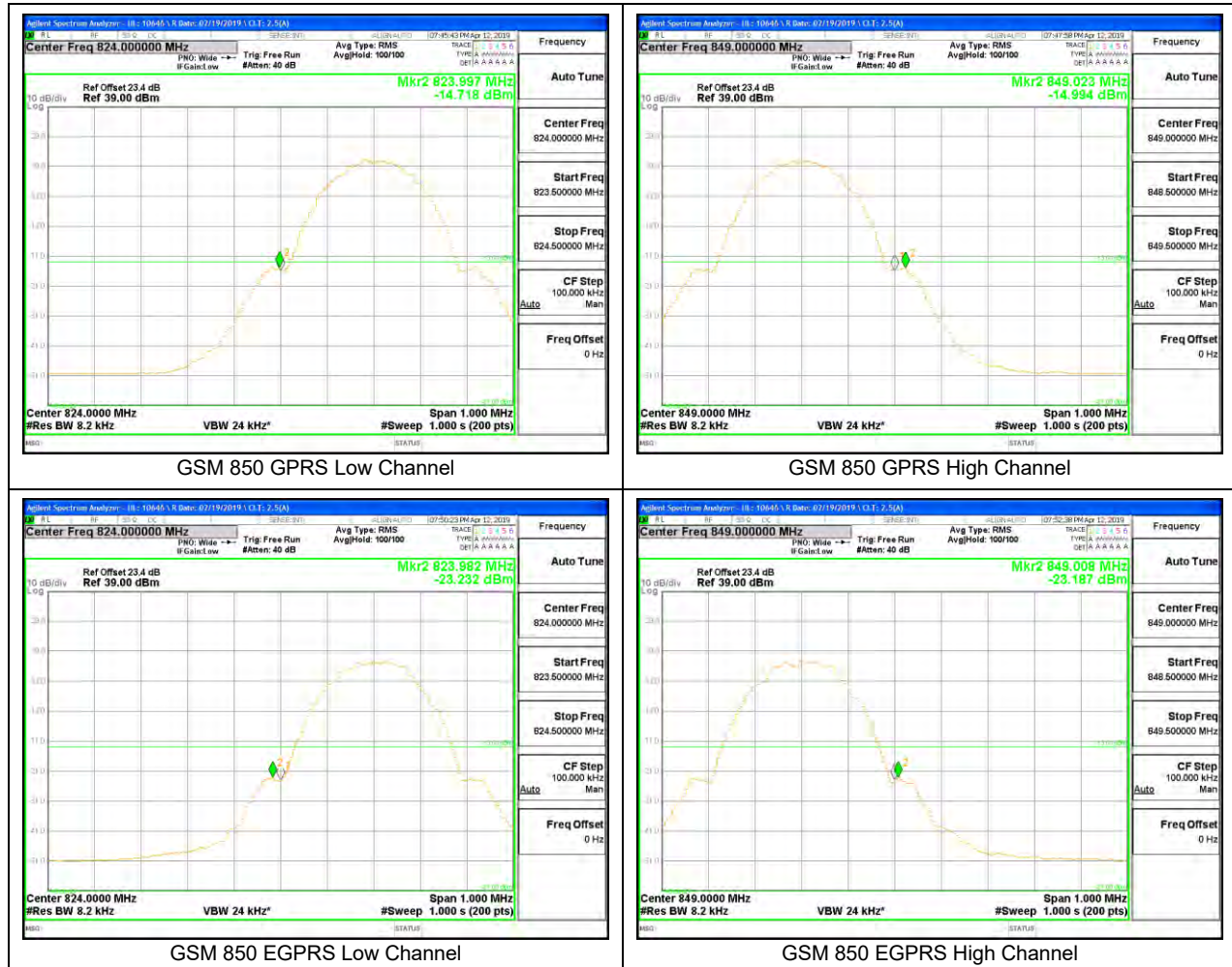
For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

## **RESULTS**

## 8.2.1. GSM

### GSM 850



# **GSM 1900**



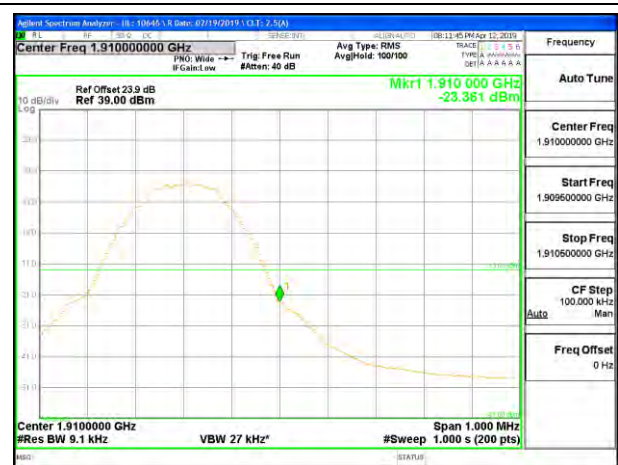
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel



GSM 1900 EGPRS Low Channel



GSM 1900 EGPRS High Channel

## 8.2.2. CDMA

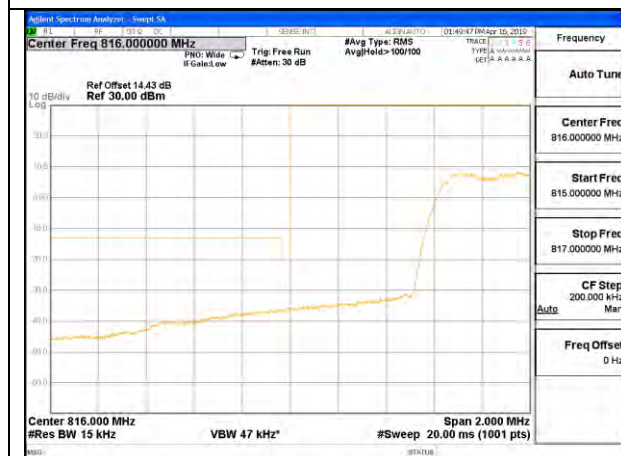
### CDMA BC10



CDMA BC10 1xRTT Low Channel, RBW=1% of EBW ID:12491



CDMA BC10 1xRTT High Channel, RBW=1% of EBW ID:12491

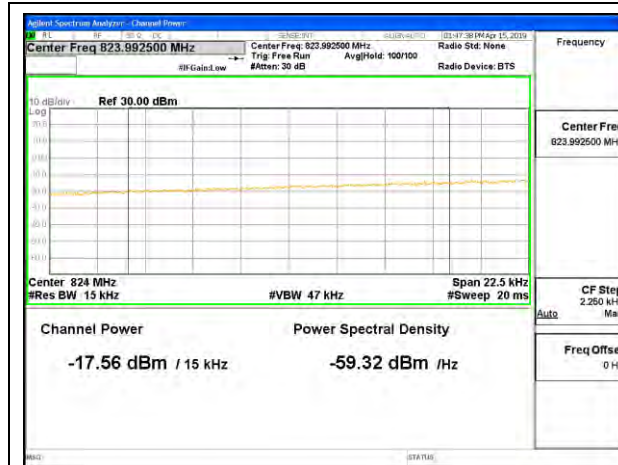


CDMA BC10 1xEV-DO Rev A Low Channel, RBW=1% of EBW ID:12491

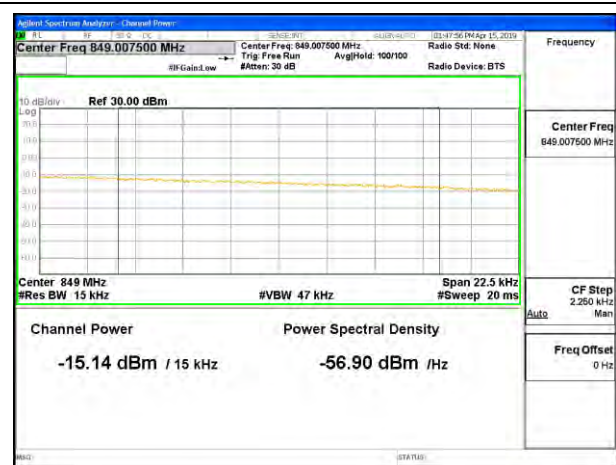


CDMA BC10 1xEV-DO Rev A High Channel, RBW=1% of EBW ID:12491

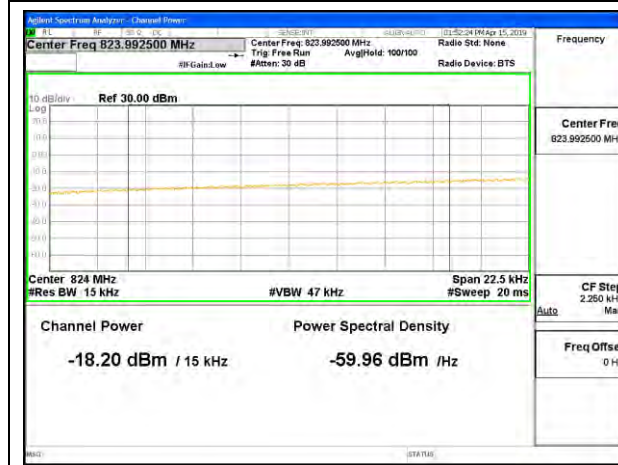
**CDMA BC0**



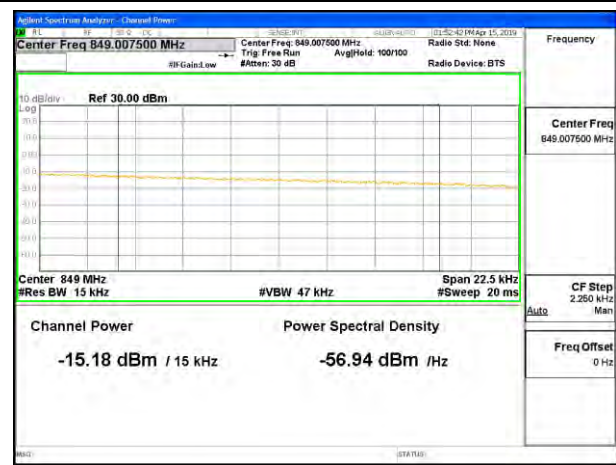
CDMA BC0 1xRTT Low Channel ID:39919



CDMA BC0 1xRTT High Channel ID:39919



CDMA BC0 1xEV-DO Rev A Low Channel ID:39919



CDMA BC0 1xEV-DO Rev A High Channel ID:39919

**CDMA BC1**



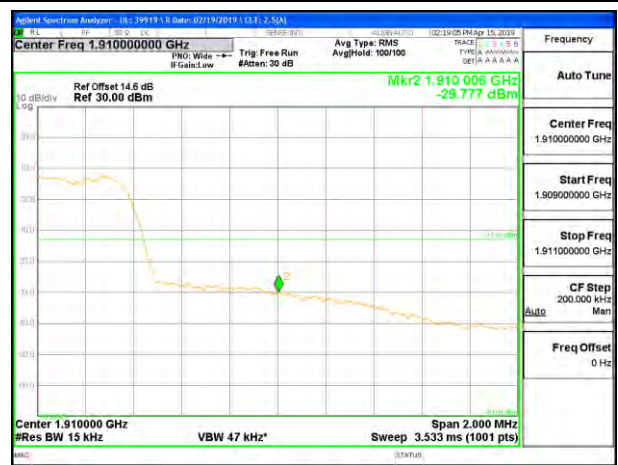
CDMA BC1 1xRTT Low Channel



CDMA BC1 1xRTT High Channel



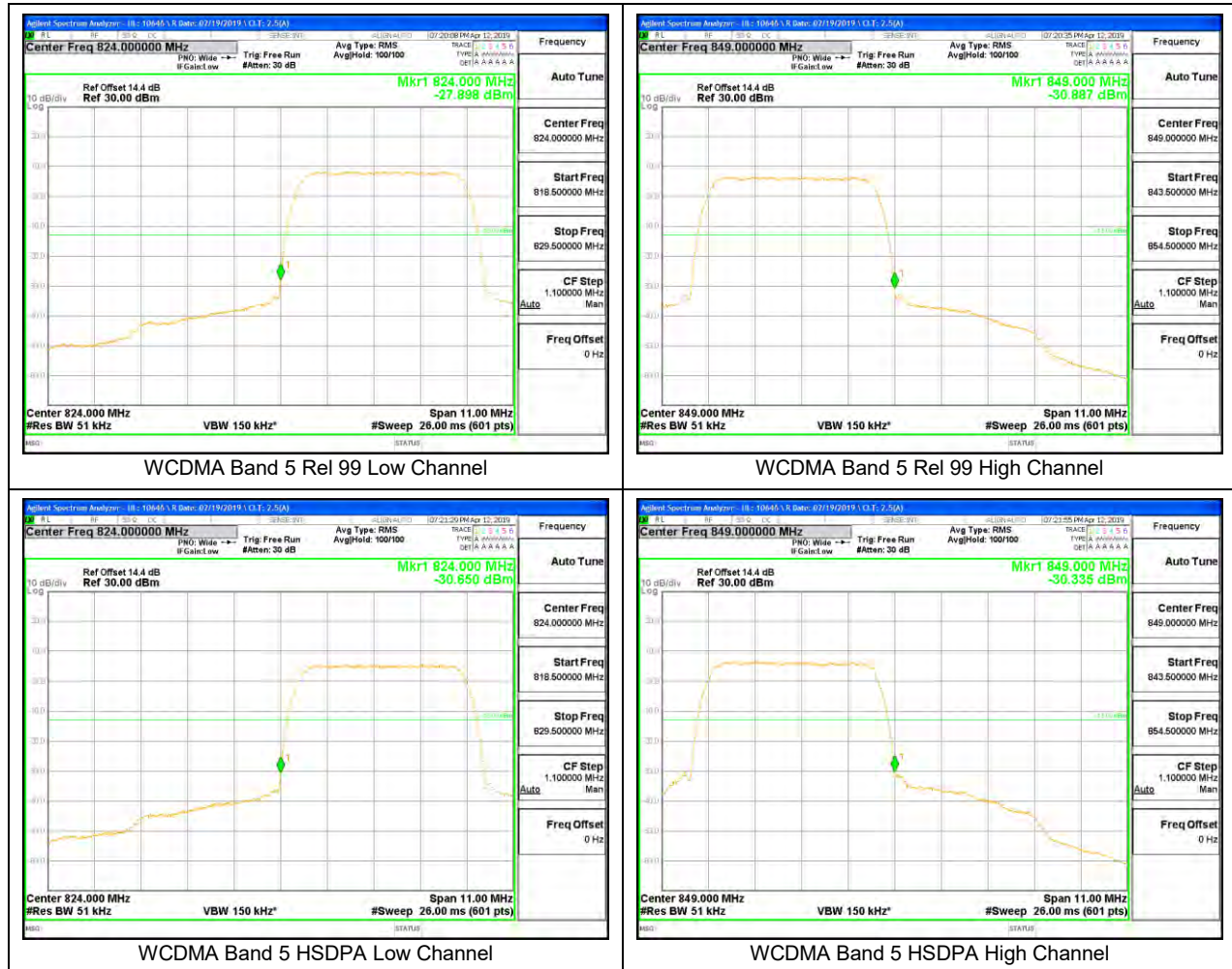
CDMA BC1 1xEV-DO Rev A Low Channel



CDMA BC1 1xEV-DO Rev A High Channel

## 8.2.3. WCDMA

### WCDMA BAND 5



## WCDMA BAND 2



WCDMA Band 2 Rel 99 Low Channel



WCDMA Band 2 Rel 99 High Channel



WCDMA Band 2 HSDPA Low Channel



WCDMA Band 2 HSDPA High Channel

**WCDMA BAND 4**



WCDMA Band 4 Rel 99 Low Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA Low Channel



WCDMA Band 4 HSDPA High Channel

### 8.3. OUT OF BAND EMISSIONS

#### RULE PART(S)

FCC: §2.1051, §22.917, §24.238, §27.53 and §90.691  
IC: RSS132§5.5; RSS133§6.5 and RSS139§6.6

#### LIMITS

FCC: §22.917, §24.238, §27.53 (h), §90.691

The minimum permissible attenuation level of any spurious emissions is  $43 + 10 \log (P)$  dB where transmitting power (P) in Watts.

RSS132§5.5, RSS133§6.5, RSS139§6.6

The minimum permissible attenuation level of any spurious emissions is  $43 + 10 \log (P)$  dB where transmitting power (P) in Watts.

#### TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.  
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

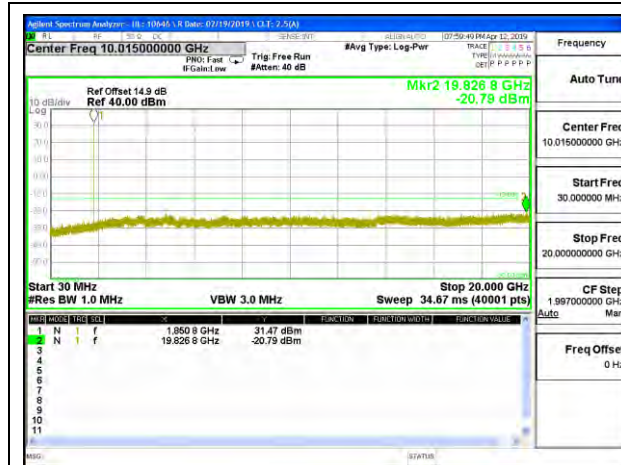
#### RESULTS

### 8.3.1. GSM

#### GSM 850MHz



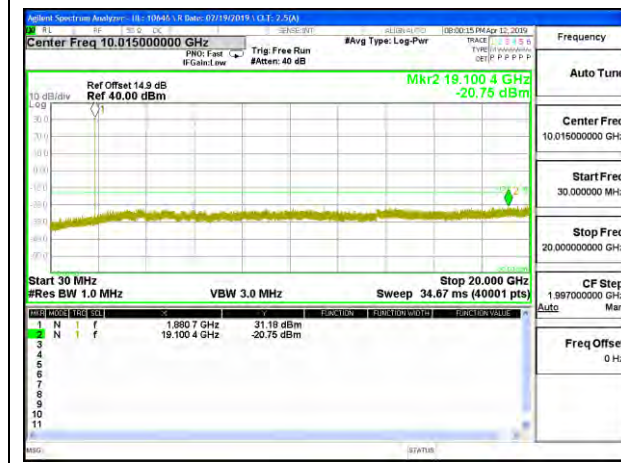
**GSM 1900MHz**



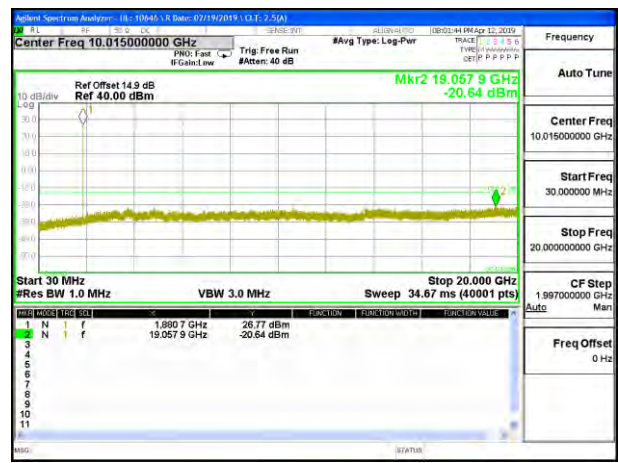
GSM 1900MHz GPRS Low Channel



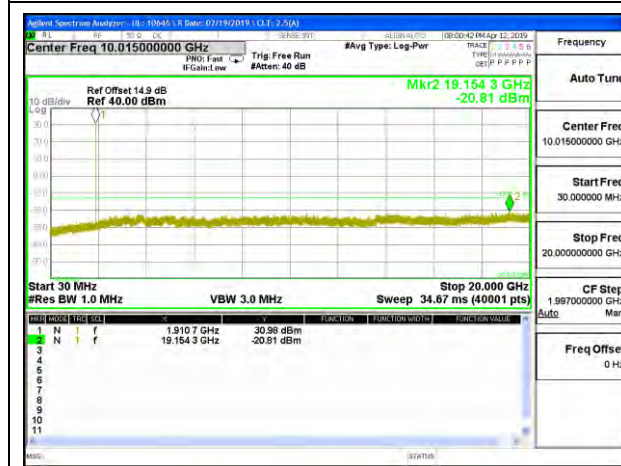
GSM 1900MHz EGPRS Low Channel



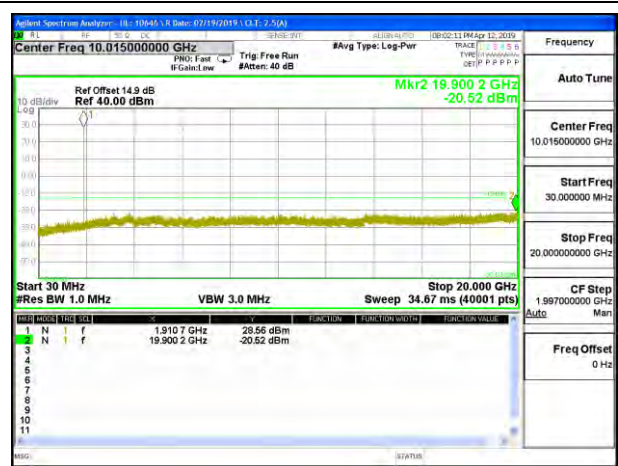
GSM 1900MHz GPRS Middle Channel



GSM 1900MHz EGPRS Middle Channel



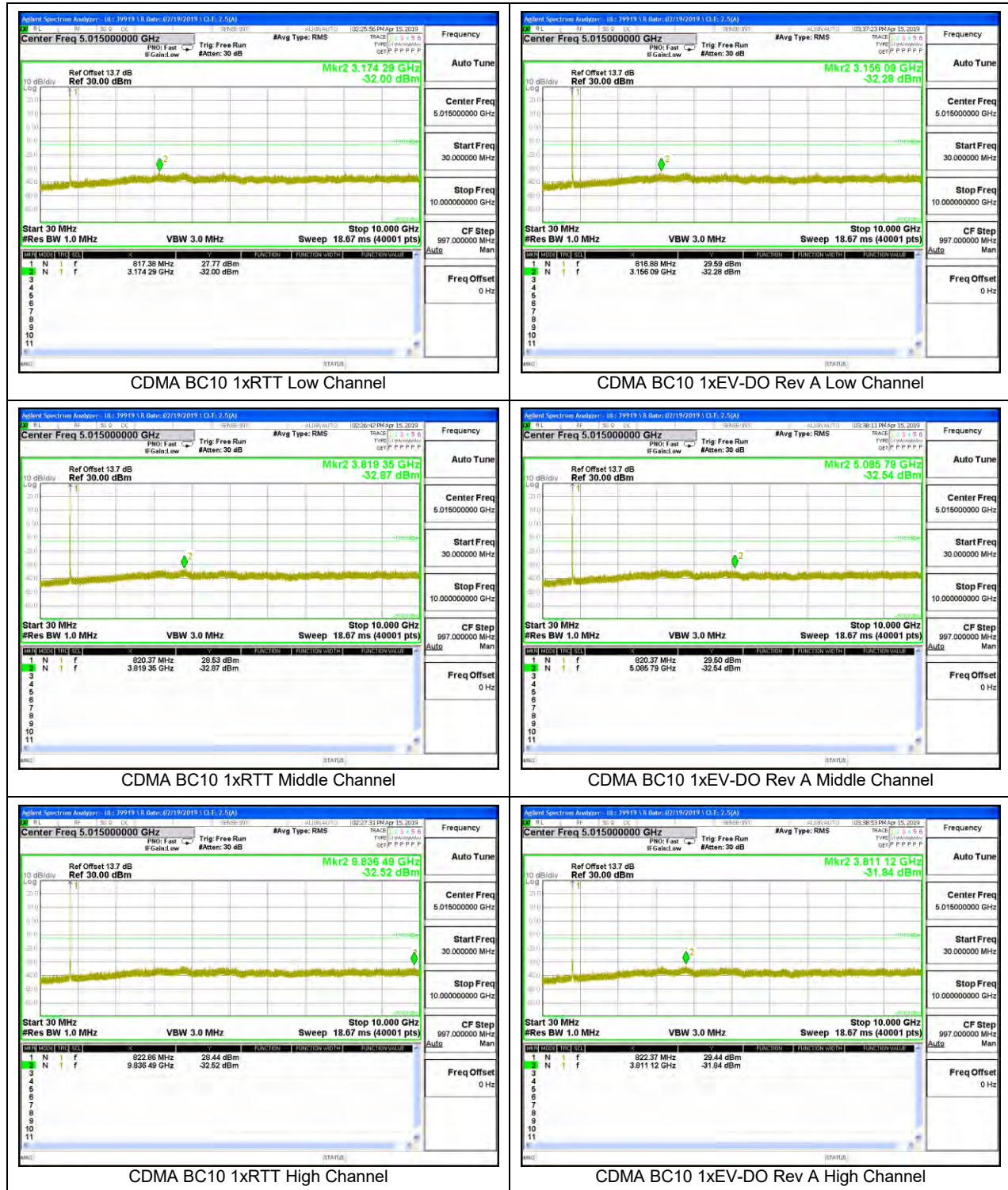
GSM 1900MHz GPRS High Channel



GSM 1900MHz EGPRS High Channel

## 8.3.2. CDMA

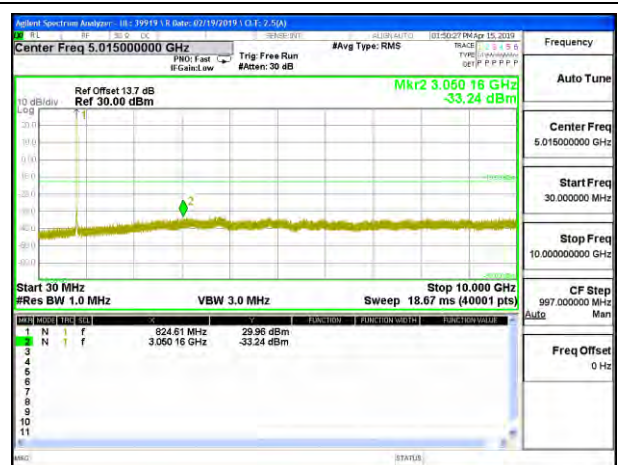
### CDMA BC10



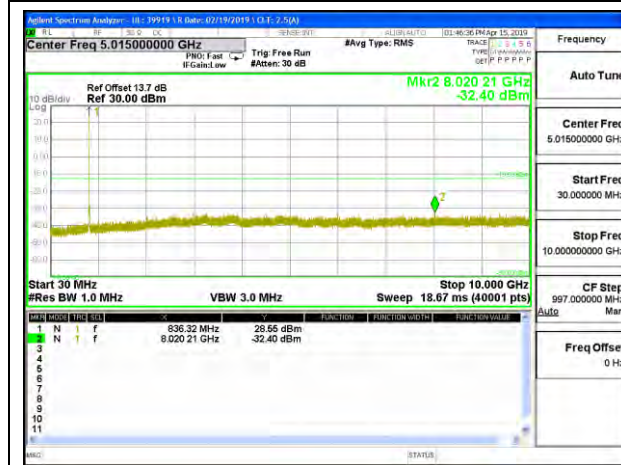
**CDMA BC0**



CDMA BC0 1xRTT Low Channel



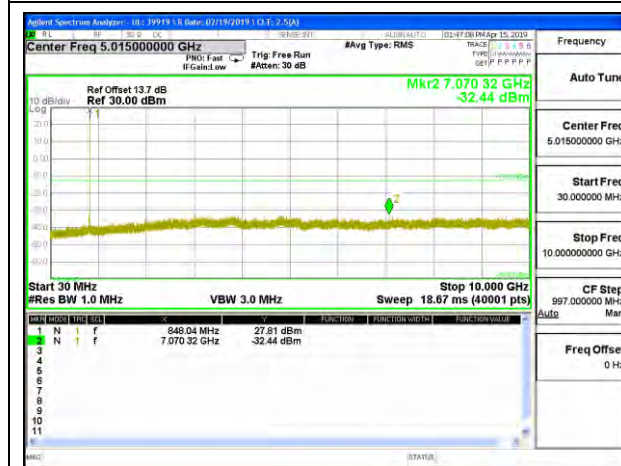
CDMA BC0 1xEV-DO Rev A Low Channel



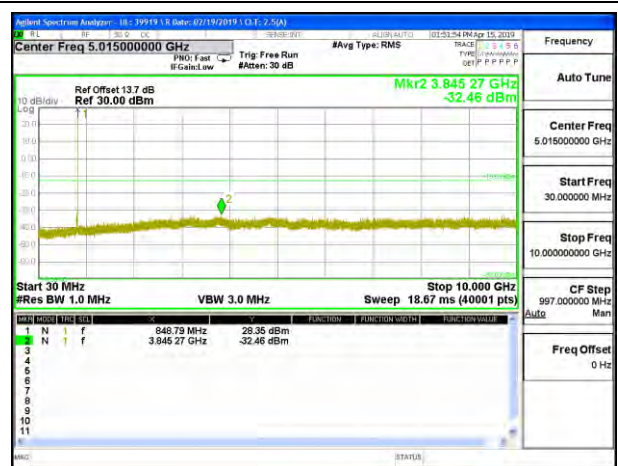
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

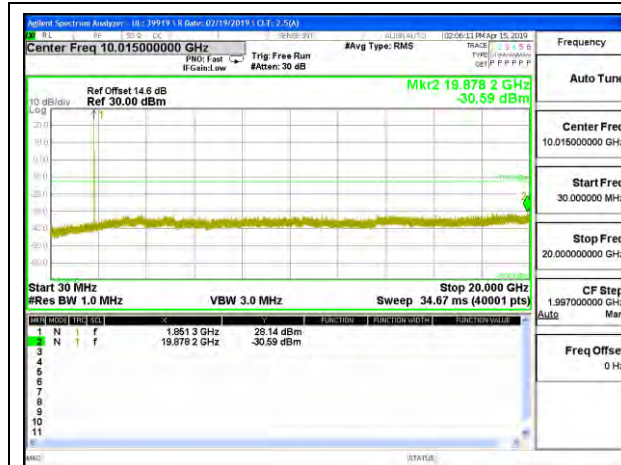


CDMA BC0 1xRTT High Channel

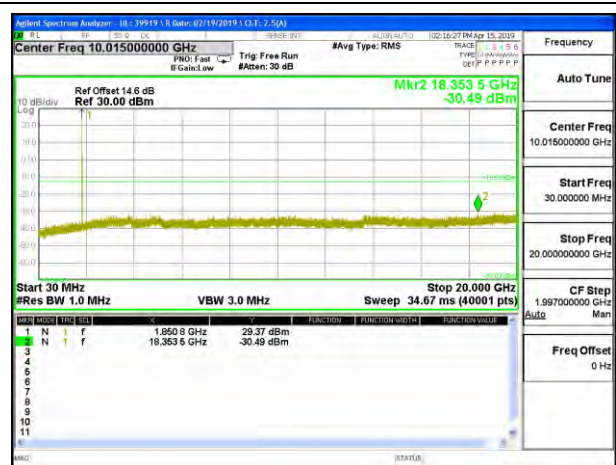


CDMA BC0 1xEV-DO Rev A High Channel

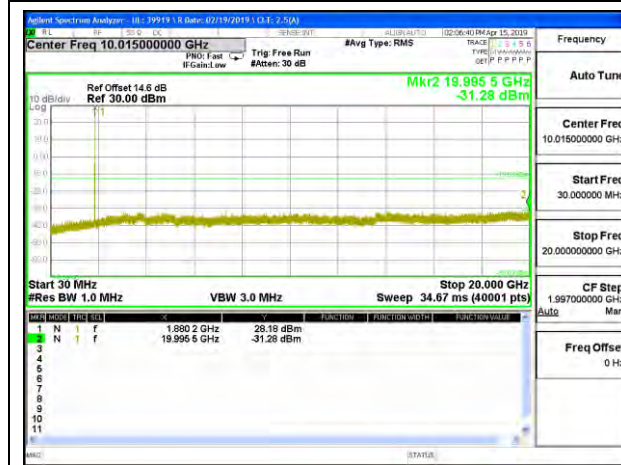
**CDMA BC1**



CDMA BC1 1xRTT Low Channel



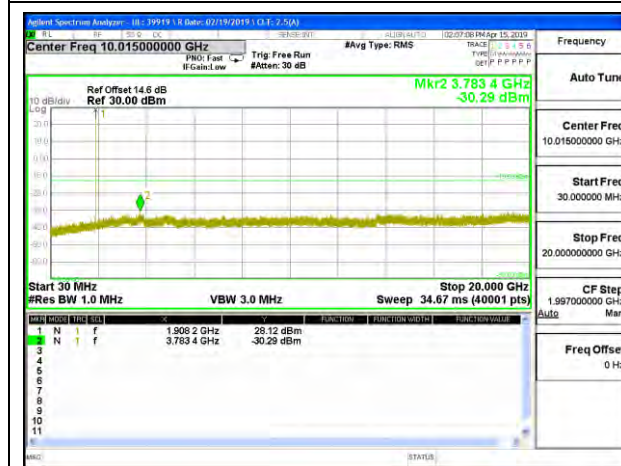
CDMA BC1 1xEV-DO Rev A Low Channel



CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel



CDMA BC1 1xRTT High Channel



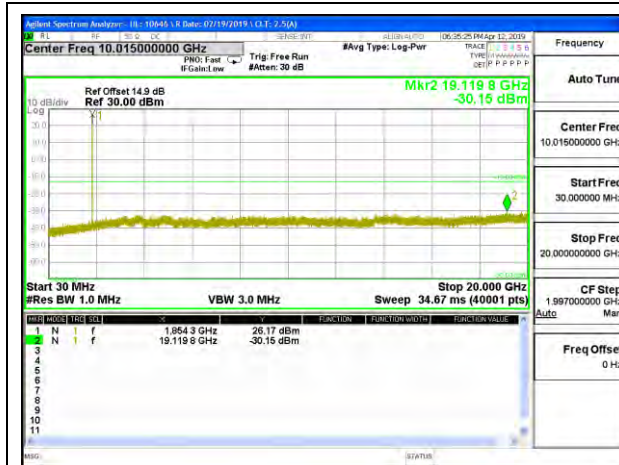
CDMA BC1 1xEV-DO Rev A High Channel

### 8.3.3. WCDMA

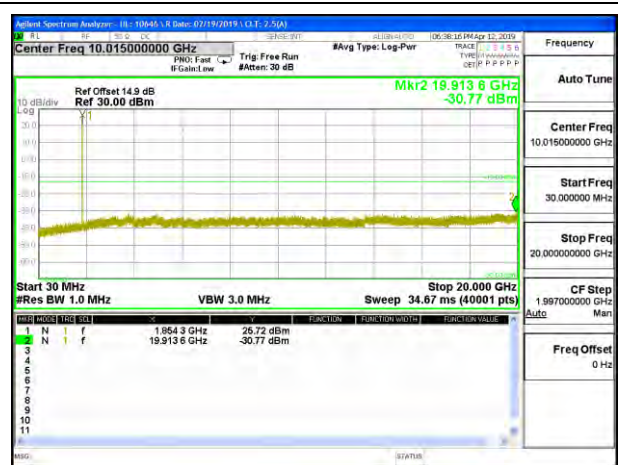
#### WCDMA BAND 5



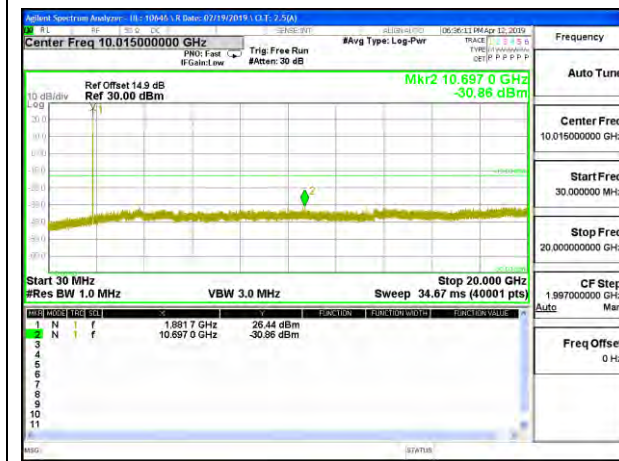
**WCDMA BAND 2**



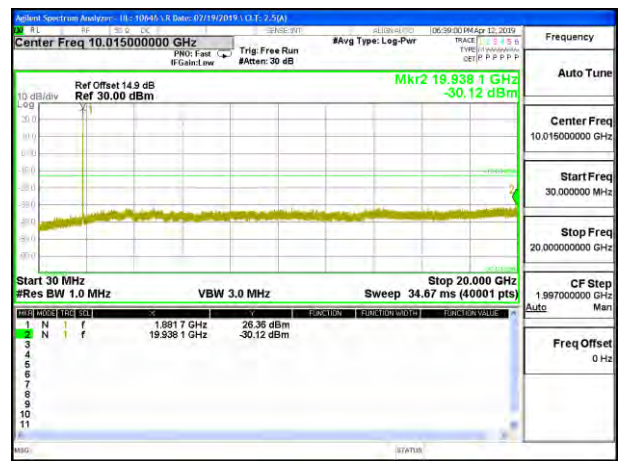
WCDMA Band 2 Rel 99 Low Channel



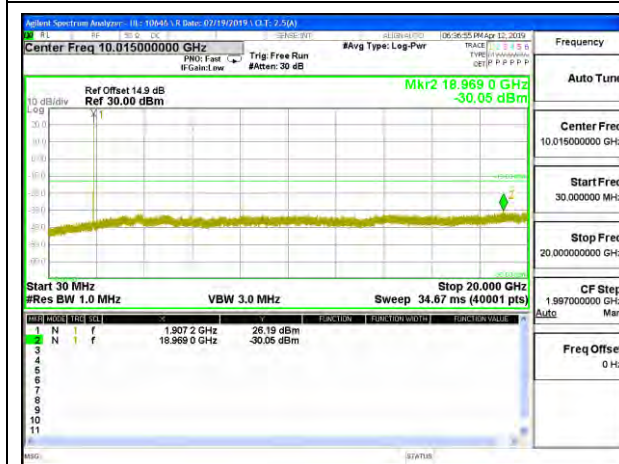
WCDMA Band 2 HSDPA Low Channel



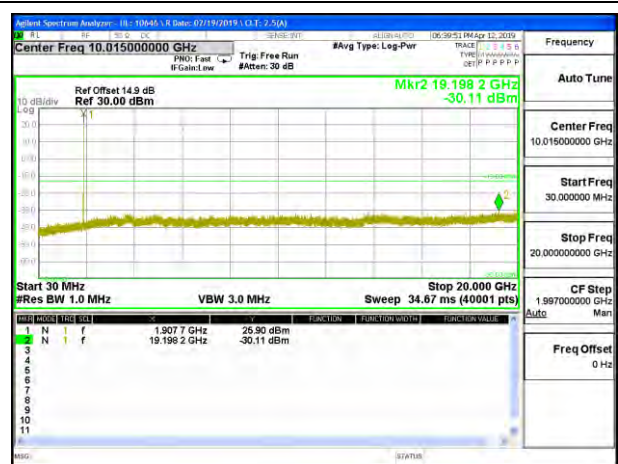
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

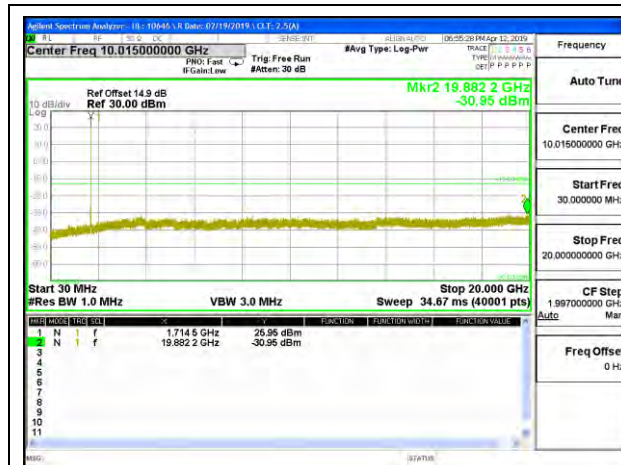


WCDMA Band 2 Rel 99 High Channel

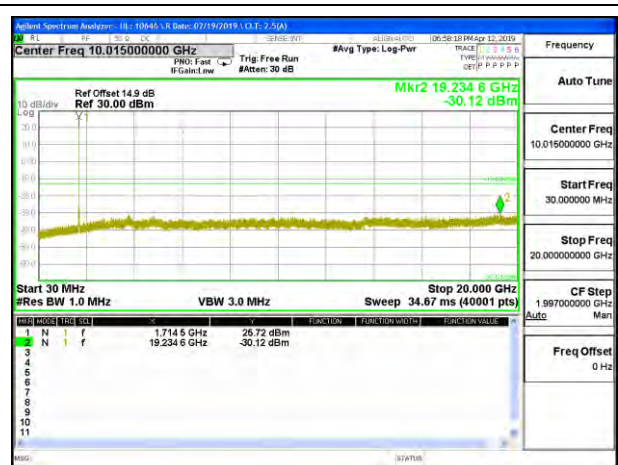


WCDMA Band 2 HSDPA High Channel

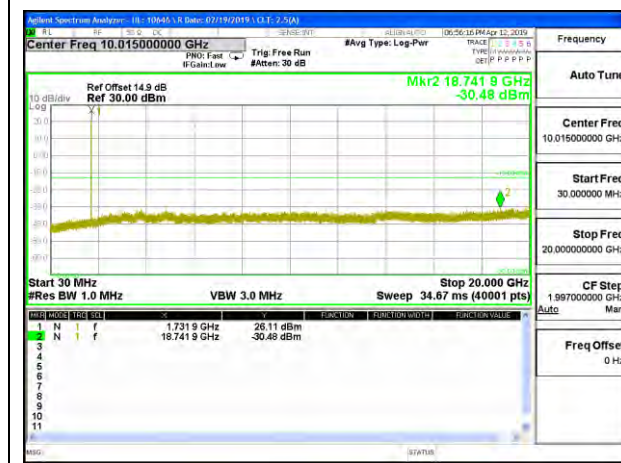
**WCDMA BAND 4**



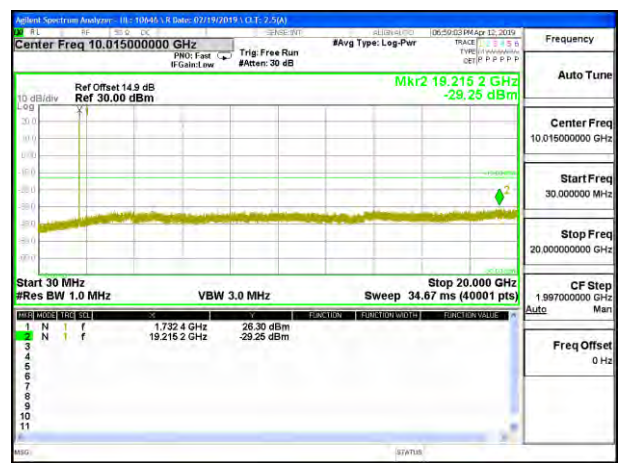
WCDMA Band 4 Rel 99 Low Channel



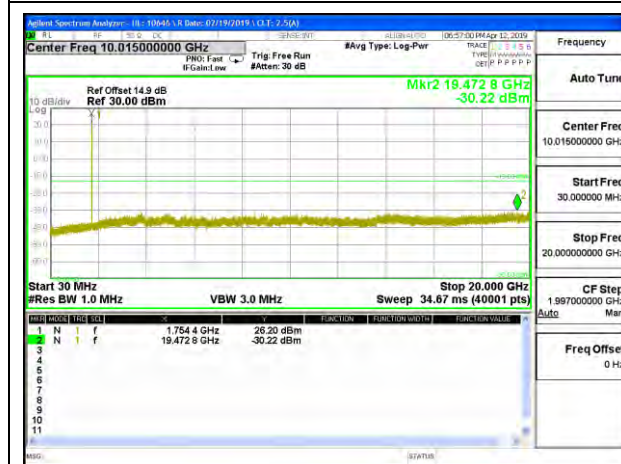
WCDMA Band 4 HSDPA Low Channel



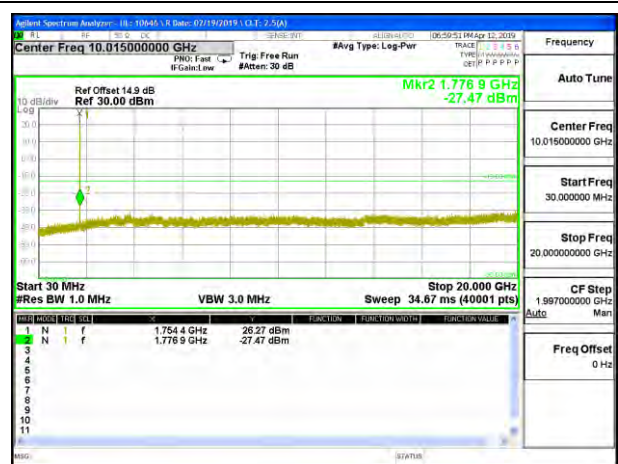
WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA High Channel

## 8.4. FREQUENCY STABILITY

### RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213  
IC: RSS132§5.3; RSS133§6.3 and RSS139§6.4

### LIMITS

FCC §22.355, §90.213

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

FCC §24.235 & §27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

RSS132§5.3

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  SRSP for mobile stations and  $\pm 1.5$  ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS133§6.3

The carrier frequency shall not depart from the reference frequency, in excess of  $\pm 2.5$  ppm for mobile stations and  $\pm 1.0$  ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS139§6.4

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

### TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. =  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)

Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.  
End Voltage, 3.2VDC.

#### **Frequency Stability vs Temperature:**

The EUT is placed inside a temperature chamber. The temperature is set to  $20^{\circ}\text{C}$  and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until  $+50^{\circ}\text{C}$  is reached.

#### **Frequency Stability vs Voltage:**

The peak frequency error is recorded (worst-case).

### RESULTS

See the following pages.

### 8.4.1. GSM

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 38602 | <b>Date:</b> | 4/5/19 |
|------------|-------|--------------|--------|

#### GPRS 850

| Limit          |           | 824                        | 849                         | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 824.038                    | 848.963                     |               |                                 |
| Extreme (50C)  |           | 824.038                    | 848.963                     | 4.8           | 0.006                           |
| Extreme (40C)  |           | 824.038                    | 848.963                     | 4.3           | 0.005                           |
| Extreme (30C)  |           | 824.038                    | 848.963                     | 4.1           | 0.005                           |
| Extreme (10C)  |           | 824.038                    | 848.963                     | 4.7           | 0.006                           |
| Extreme (0C)   |           | 824.038                    | 848.963                     | 4.8           | 0.006                           |
| Extreme (-10C) |           | 824.038                    | 848.963                     | 4.4           | 0.005                           |
| Extreme (-20C) |           | 824.038                    | 848.963                     | 4.3           | 0.005                           |
| Extreme (-30C) |           | 824.038                    | 848.963                     | 4.0           | 0.005                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 824.038                    | 848.963                     | 4.5           | 0.005                           |
|                | -15%      | 824.038                    | 848.963                     | 4.3           | 0.005                           |
|                | End Point | 824.038                    | 848.963                     | 4.7           | 0.006                           |

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 38602 | <b>Date:</b> | 4/5/19 |
|------------|-------|--------------|--------|

#### GPRS 1900

| Limit          |           | 1850                       | 1910                        | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 1850.041                   | 1909.956                    |               |                                 |
| Extreme (50C)  |           | 1850.041                   | 1909.956                    | 4.9           | 0.003                           |
| Extreme (40C)  |           | 1850.041                   | 1909.956                    | 4.7           | 0.003                           |
| Extreme (30C)  |           | 1850.041                   | 1909.956                    | 4.4           | 0.002                           |
| Extreme (10C)  |           | 1850.041                   | 1909.956                    | 4.6           | 0.002                           |
| Extreme (0C)   |           | 1850.041                   | 1909.956                    | 4.8           | 0.003                           |
| Extreme (-10C) |           | 1850.041                   | 1909.956                    | 4.5           | 0.002                           |
| Extreme (-20C) |           | 1850.041                   | 1909.956                    | 5.2           | 0.003                           |
| Extreme (-30C) |           | 1850.041                   | 1909.956                    | 5.5           | 0.003                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 1850.041                   | 1909.956                    | 4.3           | 0.002                           |
|                | -15%      | 1850.041                   | 1909.956                    | 4.6           | 0.002                           |
|                | End Point | 1850.041                   | 1909.956                    | 4.3           | 0.002                           |

### 8.4.2. CDMA

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 30606 | <b>Date:</b> | 4/8/19 |
|------------|-------|--------------|--------|

#### CDMA 1xRTT BC10

| Limit          |           | 816                        | 824                         | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 816.5680                   | 823.4280                    |               |                                 |
| Extreme (50C)  |           | 816.5680                   | 823.4280                    | 3.3           | 0.004                           |
| Extreme (40C)  |           | 816.5680                   | 823.4280                    | 2.6           | 0.003                           |
| Extreme (30C)  |           | 816.5680                   | 823.4280                    | 3.0           | 0.004                           |
| Extreme (10C)  |           | 816.5680                   | 823.4280                    | 2.4           | 0.003                           |
| Extreme (0C)   |           | 816.5680                   | 823.4280                    | 1.9           | 0.002                           |
| Extreme (-10C) |           | 816.5680                   | 823.4280                    | 2.5           | 0.003                           |
| Extreme (-20C) |           | 816.5680                   | 823.4280                    | 3.3           | 0.004                           |
| Extreme (-30C) |           | 816.5680                   | 823.4280                    | 3.1           | 0.004                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 816.5680                   | 823.4280                    | 3.1           | 0.004                           |
|                | -15%      | 816.5680                   | 823.4280                    | 2.7           | 0.003                           |
|                | End Point | 816.5680                   | 823.4280                    | 2.2           | 0.003                           |

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 30606 | <b>Date:</b> | 4/8/19 |
|------------|-------|--------------|--------|

#### CDMA 1xRTT BC0

| Limit          |           | 824                        | 849                         | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 824.0200                   | 848.9880                    |               |                                 |
| Extreme (50C)  |           | 824.0200                   | 848.9880                    | 2.2           | 0.003                           |
| Extreme (40C)  |           | 824.0200                   | 848.9880                    | 2.7           | 0.003                           |
| Extreme (30C)  |           | 824.0200                   | 848.9880                    | 3.7           | 0.004                           |
| Extreme (10C)  |           | 824.0200                   | 848.9880                    | 2.3           | 0.003                           |
| Extreme (0C)   |           | 824.0200                   | 848.9880                    | 1.9           | 0.002                           |
| Extreme (-10C) |           | 824.0200                   | 848.9880                    | 2.9           | 0.003                           |
| Extreme (-20C) |           | 824.0200                   | 848.9880                    | 4.2           | 0.005                           |
| Extreme (-30C) |           | 824.0200                   | 848.9880                    | 3.8           | 0.005                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 824.0200                   | 848.9880                    | 1.8           | 0.002                           |
|                | -15%      | 824.0200                   | 848.9880                    | 2.6           | 0.003                           |
|                | End Point | 824.0200                   | 848.9880                    | 1.2           | 0.001                           |

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 30606 | <b>Date:</b> | 4/8/19 |
|------------|-------|--------------|--------|

**CDMA 1xRTT BC1**

| Limit          |           | 1850                       | 1910                        | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 1850.5680                  | 1909.4360                   |               |                                 |
| Extreme (50C)  |           | 1850.5680                  | 1909.4360                   | 4.2           | 0.002                           |
| Extreme (40C)  |           | 1850.5680                  | 1909.4360                   | 3.8           | 0.002                           |
| Extreme (30C)  |           | 1850.5680                  | 1909.4360                   | 2.8           | 0.001                           |
| Extreme (10C)  |           | 1850.5680                  | 1909.4360                   | 2.9           | 0.002                           |
| Extreme (0C)   |           | 1850.5680                  | 1909.4360                   | 2.7           | 0.001                           |
| Extreme (-10C) |           | 1850.5680                  | 1909.4360                   | 3.5           | 0.002                           |
| Extreme (-20C) |           | 1850.5680                  | 1909.4360                   | 3.0           | 0.002                           |
| Extreme (-30C) |           | 1850.5680                  | 1909.4360                   | 3.1           | 0.002                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 1850.5680                  | 1909.4360                   | 3.6           | 0.002                           |
|                | -15%      | 1850.5680                  | 1909.4360                   | 3.1           | 0.002                           |
|                | End Point | 1850.5680                  | 1909.4360                   | 2.9           | 0.002                           |

### 8.4.3. WCDMA

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 38602 | <b>Date:</b> | 4/8/19 |
|------------|-------|--------------|--------|

#### WCDMA REL 99 BAND 5

| Limit          |           | 824                        | 849                         | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 824.2300                   | 848.7600                    |               |                                 |
| Extreme (50C)  |           | 824.2300                   | 848.7600                    | -0.5          | -0.001                          |
| Extreme (40C)  |           | 824.2300                   | 848.7600                    | -0.5          | -0.001                          |
| Extreme (30C)  |           | 824.2300                   | 848.7600                    | -0.4          | 0.000                           |
| Extreme (10C)  |           | 824.2300                   | 848.7600                    | -0.5          | -0.001                          |
| Extreme (0C)   |           | 824.2300                   | 848.7600                    | -0.4          | 0.000                           |
| Extreme (-10C) |           | 824.2300                   | 848.7600                    | -0.6          | -0.001                          |
| Extreme (-20C) |           | 824.2300                   | 848.7600                    | -0.5          | -0.001                          |
| Extreme (-30C) |           | 824.2300                   | 848.7600                    | -0.4          | 0.000                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 824.2300                   | 848.7600                    | -0.5          | -0.001                          |
|                | -15%      | 824.2300                   | 848.7600                    | -0.3          | 0.000                           |
|                | End Point | 824.2300                   | 848.7600                    | -0.5          | -0.001                          |

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 38602 | <b>Date:</b> | 4/8/19 |
|------------|-------|--------------|--------|

#### WCDMA REL 99 BAND 2

| Limit          |           | 1850                       | 1910                        | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|----------------------------|-----------------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm<br>(MHz) | F high @<br>-13dBm<br>(MHz) |               |                                 |
| Temperature    | Voltage   |                            |                             |               |                                 |
| Normal (20C)   | Normal    | 1850.240                   | 1909.750                    |               |                                 |
| Extreme (50C)  |           | 1850.240                   | 1909.750                    | -0.7          | 0.000                           |
| Extreme (40C)  |           | 1850.240                   | 1909.750                    | -0.5          | 0.000                           |
| Extreme (30C)  |           | 1850.240                   | 1909.750                    | -0.4          | 0.000                           |
| Extreme (10C)  |           | 1850.240                   | 1909.750                    | -0.4          | 0.000                           |
| Extreme (0C)   |           | 1850.240                   | 1909.750                    | -0.6          | 0.000                           |
| Extreme (-10C) |           | 1850.240                   | 1909.750                    | -0.6          | 0.000                           |
| Extreme (-20C) |           | 1850.240                   | 1909.750                    | -0.4          | 0.000                           |
| Extreme (-30C) |           | 1850.240                   | 1909.750                    | -0.2          | 0.000                           |
|                |           |                            |                             |               |                                 |
| 20C            | 15%       | 1850.240                   | 1909.750                    | -0.5          | 0.000                           |
|                | -15%      | 1850.240                   | 1909.750                    | -0.3          | 0.000                           |
|                | End Point | 1850.240                   | 1909.750                    | -0.7          | 0.000                           |

|            |       |              |        |
|------------|-------|--------------|--------|
| <b>ID:</b> | 38602 | <b>Date:</b> | 4/8/19 |
|------------|-------|--------------|--------|

**WCDMA REL 99 BAND 4**

| Limit          |           | 1710              | 1755               | Delta<br>(Hz) | Frequency<br>Stability<br>(ppm) |
|----------------|-----------|-------------------|--------------------|---------------|---------------------------------|
| Condition      |           | F low @<br>-13dBm | F high @<br>-13dBm |               |                                 |
| Temperature    | Voltage   | (MHz)             | (MHz)              |               |                                 |
| Normal (20C)   | Normal    | 1710.2400         | 1754.7600          |               |                                 |
| Extreme (50C)  |           | 1710.2400         | 1754.7600          | -0.4          | 0.000                           |
| Extreme (40C)  |           | 1710.2400         | 1754.7600          | -0.3          | 0.000                           |
| Extreme (30C)  |           | 1710.2400         | 1754.7600          | -0.4          | 0.000                           |
| Extreme (10C)  |           | 1710.2400         | 1754.7600          | -0.6          | 0.000                           |
| Extreme (0C)   |           | 1710.2400         | 1754.7600          | -0.3          | 0.000                           |
| Extreme (-10C) |           | 1710.2400         | 1754.7600          | -0.3          | 0.000                           |
| Extreme (-20C) |           | 1710.2400         | 1754.7600          | -0.5          | 0.000                           |
| Extreme (-30C) |           | 1710.2400         | 1754.7600          | -0.4          | 0.000                           |
|                |           |                   |                    |               |                                 |
| 20C            | 15%       | 1710.2400         | 1754.7600          | -0.5          | 0.000                           |
|                | -15%      | 1710.2400         | 1754.7600          | -0.3          | 0.000                           |
|                | End Point | 1710.2400         | 1754.7600          | -0.4          | 0.000                           |

## 8.5. PEAK-TO-AVERAGE POWER RATIO

### LIMIT

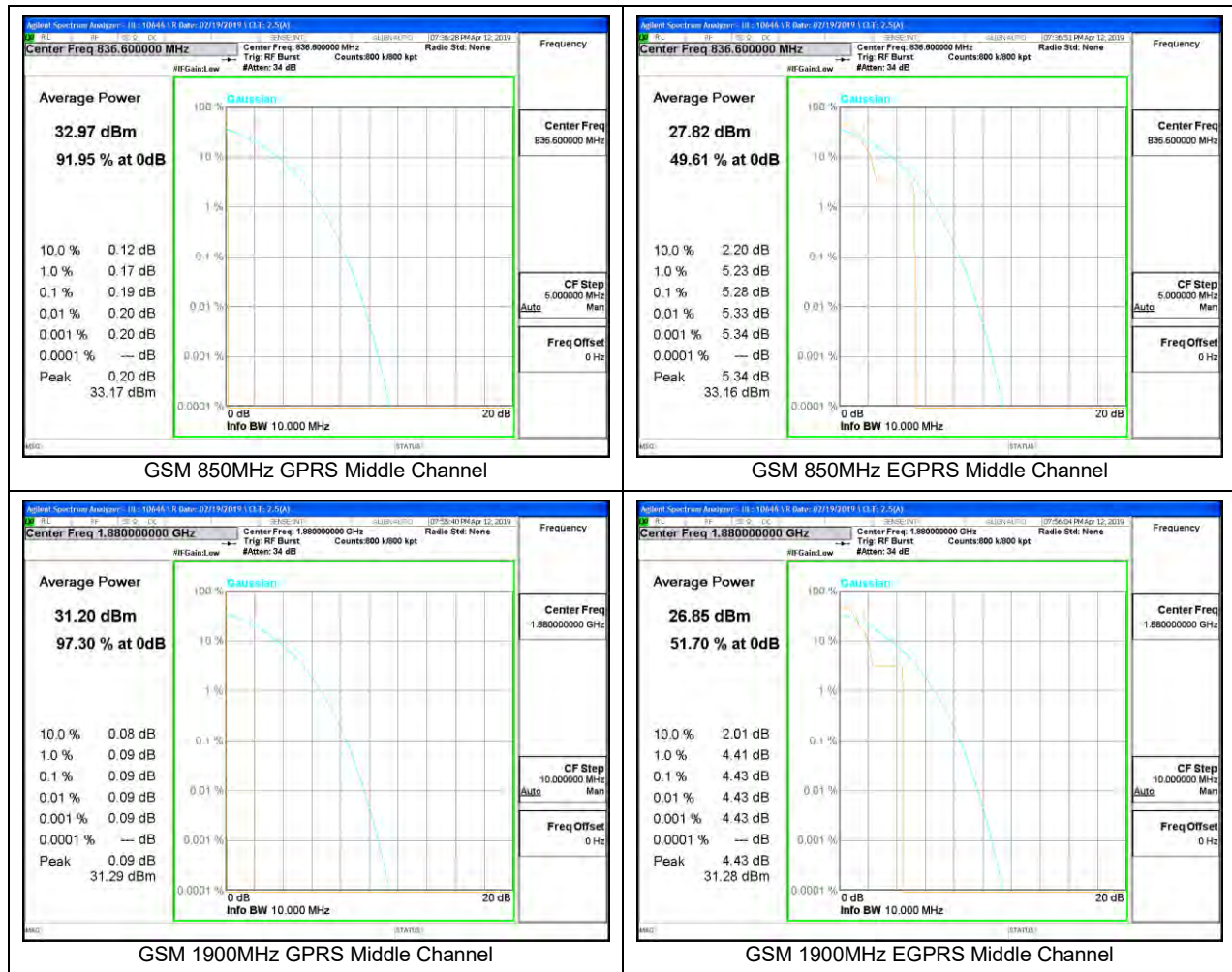
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

### RESULT

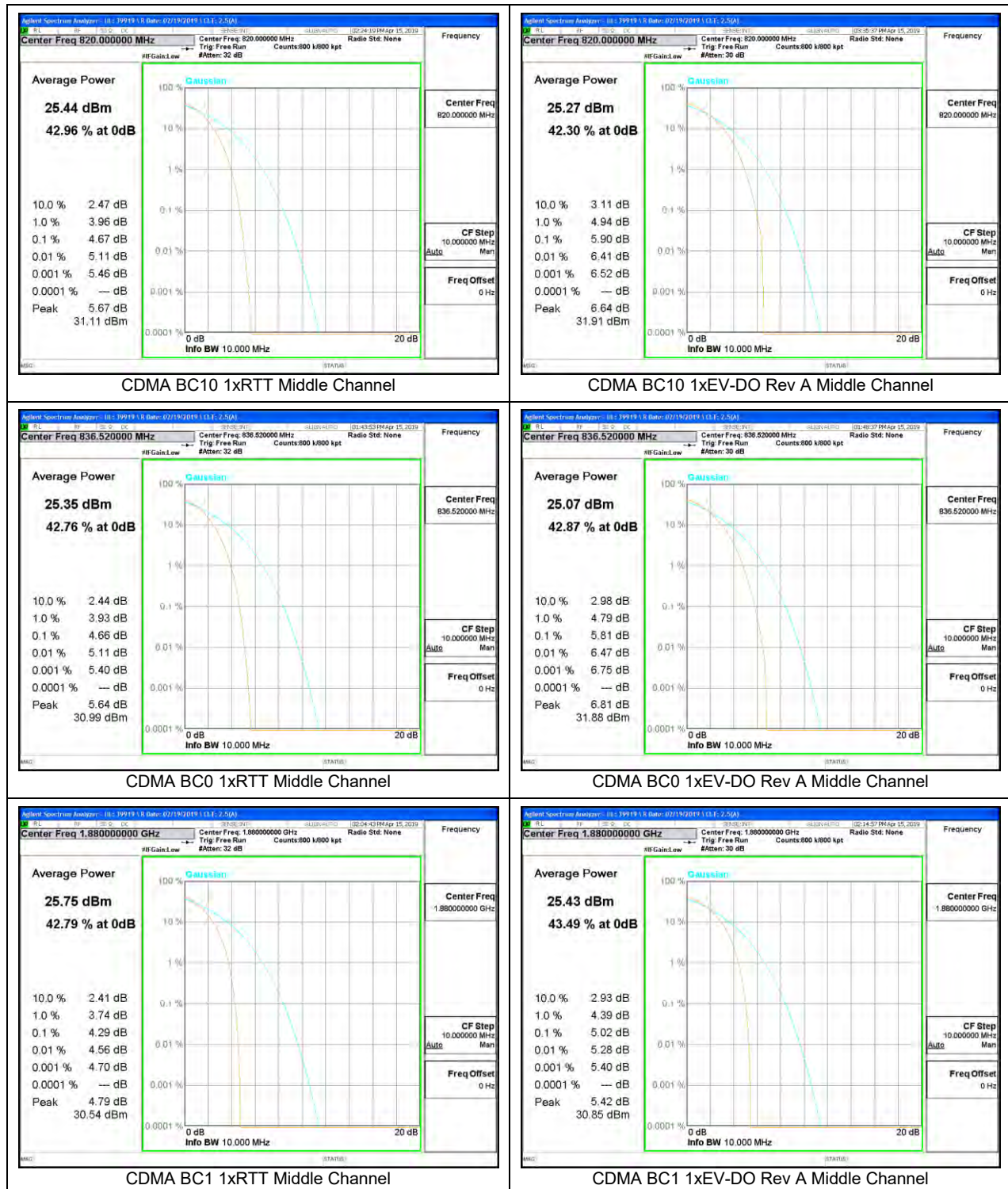
ANT 1 antenna was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 10646 | <b>Date:</b> | 4/12/19 |
|------------|-------|--------------|---------|

## 8.5.1. GSM



## 8.5.2. CDMA



### 8.5.3. WCDMA



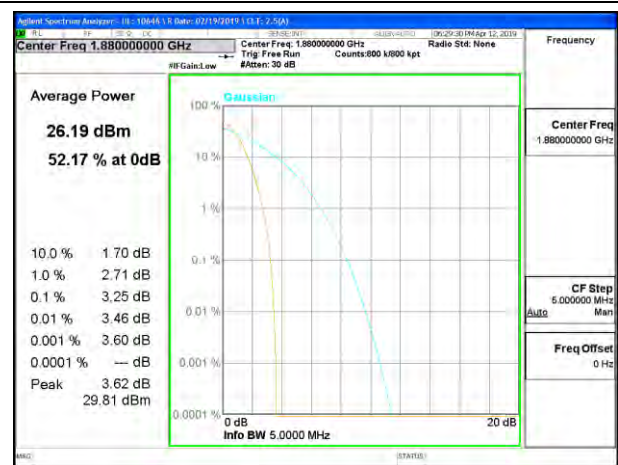
WCDMA Band 5 Rel 99 Middle Channel



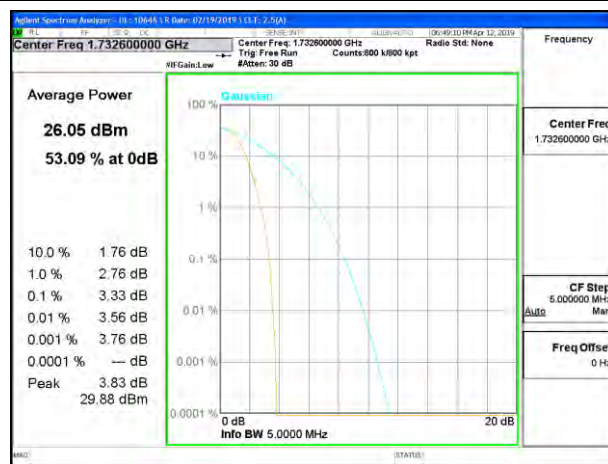
WCDMA Band 5 HSDPA Middle Channel



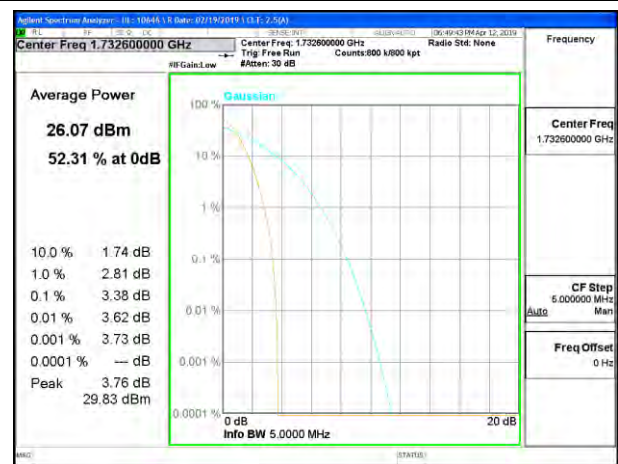
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

## 9. RADIATED TEST RESULTS

### 9.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

#### RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691.  
IC: RSS132§5.5; RSS133§6.5 and RSS139§6.6

#### LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (h), §90.691

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

#### RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} P$  (watts).
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} P$  (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

#### RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} P$  (watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} P$  (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

#### RSS139§6.6

- (i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, Footnote 2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} P$  (watts) dB.
- (ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least  $43 + 10 \log_{10} P$  (watts) dB.

#### TEST PROCEDURE

KDB 971168 D01

#### RESULTS

## 9.1.1. GSM

### GSM 850MHz

|                |             |
|----------------|-------------|
| Company:       |             |
| Project #:     | 12696946    |
| Date:          | 4/5/2019    |
| Test Engineer: | 12501       |
| Configuration: | EUT only    |
| Mode:          | GSM850 GPRS |
| Chamber #:     | Chamber B   |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 1.663                 | -64.58              | Pk  | 28.8           | -32.4        | 12.2         | -55.98                  | -13   | -42.98      | H        |
| 1.644                 | -65.13              | Pk  | 28.7           | -32.4        | 11.5         | -57.33                  | -13   | -44.33      | V        |
| 2.443                 | -65.94              | Pk  | 32.3           | -31.4        | 12.1         | -52.94                  | -13   | -39.94      | V        |
| 2.466                 | -67.29              | Pk  | 32.5           | -31.5        | 11.9         | -54.39                  | -13   | -41.39      | H        |
| 3.225                 | -67.24              | Pk  | 32.9           | -30.6        | 11           | -53.94                  | -13   | -40.94      | V        |
| 3.244                 | -66.15              | Pk  | 32.9           | -30.6        | 11.2         | -52.65                  | -13   | -39.65      | H        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.715                 | -67.39              | Pk  | 29.3           | -32.3        | 13.3         | -57.09                  | -13   | -44.09      | V        |
| 1.731                 | -66.25              | Pk  | 29.5           | -32.5        | 12.5         | -56.75                  | -13   | -43.75      | H        |
| 2.58                  | -66.53              | Pk  | 32.3           | -31.3        | 12.5         | -53.03                  | -13   | -40.03      | H        |
| 2.638                 | -66.76              | Pk  | 32.4           | -31          | 12.7         | -52.66                  | -13   | -39.66      | V        |
| 3.28                  | -68.20              | Pk  | 32.9           | -30.4        | 10.7         | -55.00                  | -13   | -42.00      | V        |
| 3.299                 | -67.14              | Pk  | 32.9           | -30.4        | 11.5         | -53.14                  | -13   | -40.14      | H        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 1.781                 | -65.67              | Pk  | 30.1           | -32.1        | 11.9         | -55.77                  | -13   | -42.77      | H        |
| 1.783                 | -70.77              | Pk  | 30.1           | -32.2        | 12.8         | -60.07                  | -13   | -47.07      | V        |
| 2.56                  | -68.14              | Pk  | 32.3           | -31.4        | 12           | -55.24                  | -13   | -42.24      | H        |
| 2.633                 | -67.08              | Pk  | 32.4           | -31.1        | 13           | -52.78                  | -13   | -39.78      | V        |
| 3.413                 | -67.4               | Pk  | 32.8           | -30.2        | 11.7         | -53.1                   | -13   | -40.1       | H        |
| 3.483                 | -68.12              | Pk  | 32.8           | -30.3        | 11.3         | -54.32                  | -13   | -41.32      | V        |

Pk - Peak detector

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12696946     |
| Date:          | 4/5/2019     |
| Test Engineer: | 12501        |
| Configuration: | EUT Only     |
| Mode:          | GSM850 EGPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 1.714                 | -65.11              | Pk  | 29.3           | -32.3        | 11.8         | -56.31                  | -13   | -43.31      | H        |
| 1.715                 | -65.63              | Pk  | 29.3           | -32.3        | 13.3         | -55.33                  | -13   | -42.33      | V        |
| 2.409                 | -66.13              | Pk  | 32.2           | -31.3        | 12.4         | -52.83                  | -13   | -39.83      | V        |
| 2.46                  | -66.09              | Pk  | 32.4           | -31.6        | 12.4         | -52.89                  | -13   | -39.89      | H        |
| 3.33                  | -66.26              | Pk  | 32.9           | -30.2        | 10.8         | -52.76                  | -13   | -39.76      | H        |
| 3.38                  | -66.47              | Pk  | 32.8           | -30          | 11.8         | -51.87                  | -13   | -38.87      | V        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.696                 | -65.31              | Pk  | 28.8           | -32.3        | 12.6         | -56.21                  | -13   | -43.21      | H        |
| 1.716                 | -65.81              | Pk  | 29.3           | -32.3        | 13.4         | -55.41                  | -13   | -42.41      | V        |
| 2.429                 | -66.23              | Pk  | 32.3           | -31.4        | 11.7         | -53.63                  | -13   | -40.63      | V        |
| 2.481                 | -67.13              | Pk  | 32.4           | -31.4        | 11.3         | -54.83                  | -13   | -41.83      | H        |
| 3.415                 | -67.1               | Pk  | 32.8           | -30.3        | 11.8         | -52.8                   | -13   | -39.8       | H        |
| 3.48                  | -66.78              | Pk  | 32.8           | -30.4        | 11.4         | -52.98                  | -13   | -39.98      | V        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 1.784                 | -65.37              | Pk  | 30.1           | -32.3        | 12.3         | -55.27                  | -13   | -42.27      | H        |
| 1.820                 | -66.15              | Pk  | 30.6           | -32.2        | 11.2         | -56.55                  | -13   | -43.55      | V        |
| 2.631                 | -66                 | Pk  | 32.4           | -31.1        | 12.9         | -51.80                  | -13   | -38.80      | V        |
| 2.632                 | -66.35              | Pk  | 32.4           | -31.1        | 12           | -53.05                  | -13   | -40.05      | H        |
| 3.430                 | -66.54              | Pk  | 32.7           | -30.1        | 11.9         | -52.04                  | -13   | -39.04      | H        |
| 3.431                 | -67.67              | Pk  | 32.7           | -30.1        | 12.1         | -52.97                  | -13   | -39.97      | V        |

Pk - Peak detector

**GSM 1900MHz**

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12696946     |
| Date:          | 4/29/19      |
| Test Engineer: | 10646        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.700                   | -63.68              | Pk  | 33.1           | -29.7        | 11.2         | -49.08                  | -13   | -36.08      | H        |
| 7.426                   | -70.69              | Pk  | 35.7           | -24.6        | 10.9         | -48.69                  | -13   | -35.69      | H        |
| 3.700                   | -64.13              | Pk  | 33.1           | -29.7        | 11.5         | -49.23                  | -13   | -36.23      | V        |
| 7.442                   | -70.81              | Pk  | 35.7           | -24.6        | 11.2         | -48.51                  | -13   | -35.51      | V        |
| 5.553                   | -68.09              | Pk  | 34.8           | -28          | 11           | -50.29                  | -13   | -37.29      | V        |
| 5.557                   | -67.82              | Pk  | 34.8           | -28.1        | 10.7         | -50.42                  | -13   | -37.42      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.801                   | -65.45              | Pk  | 33.5           | -29.6        | 11.3         | -50.25                  | -13   | -37.25      | H        |
| 7.543                   | -69.57              | Pk  | 35.7           | -24.5        | 10.7         | -47.67                  | -13   | -34.67      | H        |
| 3.786                   | -66.04              | Pk  | 33.5           | -29.7        | 11.3         | -50.94                  | -13   | -37.94      | V        |
| 7.523                   | -70.05              | Pk  | 35.6           | -24.6        | 10.6         | -48.45                  | -13   | -35.45      | V        |
| 5.610                   | -68.27              | Pk  | 35             | -28.1        | 10.5         | -50.87                  | -13   | -37.87      | H        |
| 5.627                   | -68.29              | Pk  | 34.9           | -28          | 10.6         | -50.79                  | -13   | -37.79      | V        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.820                   | -64.12              | Pk  | 33.5           | -29.5        | 11.6         | -48.52                  | -13   | -35.52      | H        |
| 7.647                   | -69.95              | Pk  | 35.7           | -24.5        | 10.7         | -48.05                  | -13   | -35.05      | H        |
| 3.820                   | -71.78              | Av  | 33.5           | -29.5        | 11.4         | -56.38                  | -13   | -43.38      | V        |
| 3.820                   | -64.85              | Pk  | 33.5           | -29.5        | 11.4         | -49.45                  | -13   | -36.45      | V        |
| 7.630                   | -69.39              | Pk  | 35.7           | -24.4        | 11.3         | -46.79                  | -13   | -33.79      | V        |
| 5.658                   | -68.02              | Pk  | 35             | -27.9        | 10.9         | -50.02                  | -13   | -37.02      | V        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12696946      |
| Date:          | 4/29/19       |
| Test Engineer: | 31300         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber B     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.881                   | -64.95              | Pk  | 33.6           | -29.4        | 11.4         | -49.35                  | -13 | -36.35      | H        |
| 10.865                  | -71.52              | Pk  | 37.9           | -20.8        | 10.9         | -43.52                  | -13 | -30.52      | H        |
| 1.500                   | -59.29              | Pk  | 27.9           | -32.5        | 12.3         | -51.59                  | -13 | -38.59      | V        |
| 2.598                   | -66.67              | Pk  | 32.4           | -31.2        | 11.3         | -54.17                  | -13 | -41.17      | V        |
| 6.396                   | -68.45              | Pk  | 35.5           | -26          | 10.7         | -48.25                  | -13 | -35.25      | H        |
| 6.500                   | -67.14              | Pk  | 35.5           | -26          | 11.3         | -46.34                  | -13 | -33.34      | V        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 3.878                   | -65.26              | Pk  | 33.6           | -29.4        | 11.8         | -49.26                  | -13 | -36.26      | H        |
| 1.500                   | -59.06              | Pk  | 27.9           | -32.5        | 12.3         | -51.36                  | -13 | -38.36      | V        |
| 2.499                   | -65.17              | Pk  | 32.4           | -31.5        | 11.8         | -52.47                  | -13 | -39.47      | V        |
| 2.935                   | -67.36              | Pk  | 32.5           | -30.6        | 11.9         | -53.56                  | -13 | -40.56      | H        |
| 6.500                   | -64.69              | Pk  | 35.5           | -26.1        | 10.9         | -44.39                  | -13 | -31.39      | H        |
| 9.885                   | -70.98              | Pk  | 37.1           | -22.2        | 10.9         | -45.18                  | -13 | -32.18      | V        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.819                   | -65.29              | Pk  | 33.5           | -29.5        | 11.6         | -49.69                  | -13 | -36.69      | H        |
| 10.842                  | -71.42              | Pk  | 37.9           | -20.2        | 10.8         | -42.92                  | -13 | -29.92      | V        |
| 2.599                   | -66.1               | Pk  | 32.4           | -31.1        | 11.3         | -53.50                  | -13 | -40.50      | V        |
| 5.736                   | -67.9               | Pk  | 35             | -27.5        | 10.3         | -50.10                  | -13 | -37.10      | H        |
| 6.500                   | -67.33              | Pk  | 35.5           | -26.1        | 11.3         | -46.63                  | -13 | -33.63      | V        |
| 9.673                   | -70.59              | Pk  | 36.9           | -22          | 10.9         | -44.79                  | -13 | -31.79      | H        |

Pk - Peak detector

## 9.1.2. CDMA

### CDMA BC10

|                |                 |
|----------------|-----------------|
| Company:       |                 |
| Project #:     | 12696946        |
| Date:          | 6/2/19          |
| Test Engineer: | 39006           |
| Configuration: | EUT Only        |
| Mode:          | CDMA BC10 1xRTT |
| Chamber #:     | Chamber B       |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.702                  | -66.61              | Pk  | 29             | -32.1        | 12.2         | -57.51                  | -13   | -44.51      | H        |
| 1.703                  | -66.38              | Pk  | 29.1           | -32.1        | 12.9         | -56.48                  | -13   | -43.48      | V        |
| 2.444                  | -67.2               | Pk  | 32.5           | -31.4        | 12.1         | -54.00                  | -13   | -41.00      | V        |
| 2.454                  | -67.65              | Pk  | 32.4           | -31.5        | 12.4         | -54.35                  | -13   | -41.35      | H        |
| 3.258                  | -67.36              | Pk  | 32.9           | -30.5        | 10.6         | -54.36                  | -13   | -41.36      | V        |
| 3.271                  | -67.77              | Pk  | 32.9           | -30.5        | 10           | -55.37                  | -13   | -42.37      | H        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 1.643                  | -69.45              | Pk  | 28.6           | -32.3        | 12.3         | -60.85                  | -13   | -47.85      | H        |
| 1.645                  | -70.73              | Pk  | 28.7           | -32.4        | 11.4         | -63.03                  | -13   | -50.03      | V        |
| 2.369                  | -69.58              | Pk  | 32.1           | -31.2        | 12.4         | -56.28                  | -13   | -43.28      | V        |
| 2.371                  | -70.35              | Pk  | 32.1           | -31.2        | 13.2         | -56.25                  | -13   | -43.25      | H        |
| 3.358                  | -69.17              | Pk  | 32.8           | -30.1        | 11.6         | -54.87                  | -13   | -41.87      | V        |
| 3.359                  | -71.75              | Pk  | 32.8           | -30.2        | 11           | -58.15                  | -13   | -45.15      | H        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.666                  | -70.85              | Pk  | 28.8           | -32.4        | 12.5         | -61.95                  | -13   | -48.95      | H        |
| 1.668                  | -71.41              | Pk  | 28.8           | -32.4        | 11.6         | -63.41                  | -13   | -50.41      | V        |
| 2.457                  | -73.41              | Pk  | 32.5           | -31.5        | 11.5         | -60.91                  | -13   | -47.91      | V        |
| 2.464                  | -70.01              | Pk  | 32.6           | -31.6        | 12.1         | -56.91                  | -13   | -43.91      | H        |
| 3.230                  | -71.35              | Pk  | 32.9           | -30.5        | 11.2         | -57.75                  | -13   | -44.75      | V        |
| 3.246                  | -71.3               | Pk  | 33             | -30.6        | 11.2         | -57.70                  | -13   | -44.70      | H        |

Pk - Peak detector

|                |                       |
|----------------|-----------------------|
| Company:       |                       |
| Project #:     | 12696946              |
| Date:          | 6/2/19                |
| Test Engineer: | 39006                 |
| Configuration: | EUT Only              |
| Mode:          | CDMA BC10 EV-DO Rev A |
| Chamber #:     | Chamber B             |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.721                  | -66.49              | Pk  | 29.5           | -32.4        | 11.9         | -57.49                  | -13   | -44.49      | H        |
| 1.723                  | -66.35              | Pk  | 29.4           | -32.3        | 13.7         | -55.55                  | -13   | -42.55      | V        |
| 2.639                  | -66.85              | Pk  | 32.7           | -31          | 11.9         | -53.25                  | -13   | -40.25      | H        |
| 2.642                  | -67.5               | Pk  | 32.6           | -31          | 11.8         | -54.10                  | -13   | -41.10      | V        |
| 3.306                  | -67.44              | Pk  | 32.9           | -30.3        | 10.9         | -53.94                  | -13   | -40.94      | V        |
| 3.309                  | -68.1               | Pk  | 32.8           | -30.3        | 11.3         | -54.30                  | -13   | -41.30      | H        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 1.593                  | -66.17              | Pk  | 28.1           | -32.5        | 11.7         | -58.87                  | -13   | -45.87      | V        |
| 1.600                  | -77.52              | Pk  | 28.1           | -32.4        | 11.9         | -69.92                  | -13   | -56.92      | H        |
| 2.387                  | -67.25              | Pk  | 32.2           | -31.5        | 12.6         | -53.95                  | -13   | -40.95      | H        |
| 2.397                  | -67.11              | Pk  | 32.3           | -31.4        | 13.1         | -53.11                  | -13   | -40.11      | V        |
| 3.191                  | -67.27              | Pk  | 32.9           | -30.5        | 11.2         | -53.67                  | -13   | -40.67      | V        |
| 3.195                  | -67.65              | Pk  | 32.9           | -30.6        | 11.5         | -53.85                  | -13   | -40.85      | H        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.677                  | -65.23              | Pk  | 28.9           | -32.4        | 10.9         | -57.83                  | -13   | -44.83      | V        |
| 1.682                  | -66.54              | Pk  | 28.9           | -32.4        | 12.1         | -57.94                  | -13   | -44.94      | H        |
| 2.383                  | -67.84              | Pk  | 32.2           | -31.4        | 12.7         | -54.34                  | -13   | -41.34      | H        |
| 2.386                  | -67.51              | Pk  | 32.2           | -31.5        | 12.6         | -54.21                  | -13   | -41.21      | V        |
| 3.296                  | -67.53              | Pk  | 32.9           | -30.3        | 11.4         | -53.53                  | -13   | -40.53      | H        |
| 3.306                  | -67.19              | Pk  | 32.9           | -30.3        | 10.9         | -53.69                  | -13   | -40.69      | V        |

Pk - Peak detector

**CDMA BC0**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12696946       |
| Date:          | 6/2/19         |
| Test Engineer: | 39006          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC0 1xRTT |
| Chamber #:     | Chamber B      |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.739                  | -67.31              | Pk  | 29.7           | -32.3        | 12.5         | -57.41                  | -13   | -44.41      | H        |
| 1.745                  | -67.46              | Pk  | 29.7           | -32.2        | 12.3         | -57.66                  | -13   | -44.66      | V        |
| 2.366                  | -67.55              | Pk  | 32.1           | -31.4        | 13.2         | -53.65                  | -13   | -40.65      | H        |
| 2.396                  | -67.1               | Pk  | 32.3           | -31.4        | 13.2         | -53.00                  | -13   | -40.00      | V        |
| 3.233                  | -67.14              | Pk  | 32.9           | -30.6        | 11.5         | -53.34                  | -13   | -40.34      | H        |
| 3.271                  | -66.85              | Pk  | 32.9           | -30.5        | 10.4         | -54.05                  | -13   | -41.05      | V        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.668                  | -65.38              | Pk  | 28.8           | -32.4        | 12.6         | -56.38                  | -13   | -43.38      | H        |
| 1.672                  | -75.51              | Av  | 28.9           | -32.3        | 11.5         | -67.41                  | -13   | -54.41      | V        |
| 2.459                  | -76.92              | Av  | 32.5           | -31.6        | 11.6         | -64.42                  | -13   | -51.42      | V        |
| 2.464                  | -66.68              | Pk  | 32.6           | -31.6        | 12.1         | -53.58                  | -13   | -40.58      | H        |
| 3.292                  | -67.86              | Pk  | 32.9           | -30.3        | 11.2         | -54.06                  | -13   | -41.06      | V        |
| 3.294                  | -68.41              | Pk  | 32.9           | -30.3        | 11.2         | -54.61                  | -13   | -41.61      | H        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.717                  | -65.94              | Pk  | 29.4           | -32.3        | 11.8         | -57.04                  | -13   | -44.04      | H        |
| 1.719                  | -66.87              | Pk  | 29.5           | -32.4        | 13.8         | -55.97                  | -13   | -42.97      | V        |
| 2.388                  | -67.9               | Pk  | 32.2           | -31.5        | 12.7         | -54.50                  | -13   | -41.50      | H        |
| 2.403                  | -68.37              | Pk  | 32.3           | -31.3        | 12.3         | -55.07                  | -13   | -42.07      | V        |
| 3.507                  | -68.59              | Pk  | 34             | -30.3        | 11.4         | -53.49                  | -13   | -40.49      | V        |
| 3.525                  | -67.75              | Pk  | 33.1           | -30.1        | 10.9         | -53.85                  | -13   | -40.85      | H        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12696946             |
| Date:          | 6/2/19               |
| Test Engineer: | 39006                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC0 EV-DO Rev A |
| Chamber #:     | Chamber B            |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.645                  | -66.95              | Pk  | 28.7           | -32.4        | 12.3         | -58.35                  | -13   | -45.35      | H        |
| 1.649                  | -66.2               | Pk  | 28.7           | -32.3        | 11.2         | -58.60                  | -13   | -45.60      | V        |
| 2.633                  | -67.89              | Pk  | 32.6           | -31          | 12           | -54.29                  | -13   | -41.29      | H        |
| 2.636                  | -67.05              | Pk  | 32.7           | -31          | 12.9         | -52.45                  | -13   | -39.45      | V        |
| 3.493                  | -77.12              | Pk  | 33.2           | -30.3        | 11.8         | -62.42                  | -13   | -49.42      | V        |
| 3.505                  | -68.41              | Pk  | 34.2           | -30.2        | 11.5         | -52.91                  | -13   | -39.91      | H        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.704                  | -66.79              | Pk  | 29.1           | -32.1        | 12.9         | -56.89                  | -13   | -43.89      | V        |
| 1.712                  | -66.3               | Pk  | 29.2           | -32.3        | 12           | -57.4                   | -13   | -44.4       | H        |
| 2.467                  | -67.33              | Pk  | 32.6           | -31.5        | 11.9         | -54.33                  | -13   | -41.33      | H        |
| 2.467                  | -67.1               | Pk  | 32.6           | -31.5        | 11.1         | -54.90                  | -13   | -41.90      | V        |
| 3.292                  | -67.53              | Pk  | 32.9           | -30.3        | 11.1         | -53.83                  | -13   | -40.83      | H        |
| 3.293                  | -67.53              | Pk  | 32.9           | -30.3        | 11.2         | -53.73                  | -13   | -40.73      | V        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.663                  | -66.04              | Pk  | 28.8           | -32.4        | 12.2         | -57.44                  | -13   | -44.44      | H        |
| 2.355                  | -67.11              | Pk  | 32             | -31.6        | 12.9         | -53.81                  | -13   | -40.81      | H        |
| 3.480                  | -68.15              | Pk  | 32.8           | -30.4        | 11.6         | -54.15                  | -13   | -41.15      | H        |
| 1.650                  | -66.62              | Pk  | 28.7           | -32.3        | 11.2         | -59.02                  | -13   | -46.02      | V        |
| 2.343                  | -65.89              | Pk  | 31.9           | -31.6        | 12.9         | -52.69                  | -13   | -39.69      | V        |
| 3.229                  | -67.74              | Pk  | 32.9           | -30.5        | 11.2         | -54.14                  | -13   | -41.14      | V        |

Pk - Peak detector

**CDMA BC1**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12696946       |
| Date:          | 6/2/19         |
| Test Engineer: | 39006          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC1 1xRTT |
| Chamber #:     | Chamber B      |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.719                   | -66.55              | Pk  | 33.3           | -29.9        | 11.1         | -52.05                  | -13   | -39.05      | V        |
| 3.732                   | -67.58              | Pk  | 33.4           | -29.9        | 11.2         | -52.88                  | -13   | -39.88      | H        |
| 5.549                   | -69.51              | Pk  | 34.8           | -28.1        | 10.8         | -52.01                  | -13   | -39.01      | H        |
| 5.559                   | -69.34              | Pk  | 34.8           | -28.2        | 10.8         | -51.94                  | -13   | -38.94      | V        |
| 7.456                   | -71.28              | Pk  | 35.8           | -24.7        | 10.8         | -49.38                  | -13   | -36.38      | V        |
| 7.477                   | -71.5               | Pk  | 35.8           | -24.6        | 10.7         | -49.60                  | -13   | -36.60      | H        |
| Mid Channel 1880.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.721                   | -66.88              | Pk  | 33.3           | -30          | 11.2         | -52.38                  | -13   | -39.38      | H        |
| 3.732                   | -66.8               | Pk  | 33.4           | -29.9        | 11.4         | -51.90                  | -13   | -38.90      | V        |
| 5.386                   | -69.3               | Pk  | 34.9           | -28.1        | 10.7         | -51.80                  | -13   | -38.80      | V        |
| 5.413                   | -68.58              | Pk  | 35             | -28          | 11.1         | -50.48                  | -13   | -37.48      | H        |
| 7.334                   | -70.15              | Pk  | 35.8           | -24.9        | 11           | -48.25                  | -13   | -35.25      | V        |
| 7.390                   | -70.92              | Pk  | 35.6           | -24.7        | 10.6         | -49.42                  | -13   | -36.42      | H        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.679                   | -67.68              | Pk  | 33.2           | -29.9        | 11.4         | -52.98                  | -13   | -39.98      | V        |
| 3.690                   | -67.08              | Pk  | 33.2           | -29.7        | 11.4         | -52.18                  | -13   | -39.18      | H        |
| 5.508                   | -69.55              | Pk  | 34.9           | -28.1        | 11.1         | -51.65                  | -13   | -38.65      | V        |
| 5.547                   | -69.11              | Pk  | 34.8           | -28.1        | 10.9         | -51.51                  | -13   | -38.51      | H        |
| 7.480                   | -71.81              | Pk  | 35.7           | -24.5        | 10.8         | -49.81                  | -13   | -36.81      | V        |
| 7.499                   | -71.77              | Pk  | 35.7           | -24.5        | 10.7         | -49.87                  | -13   | -36.87      | H        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12696946             |
| Date:          | 6/2/19               |
| Test Engineer: | 39006                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC1 EV-DO Rev A |
| Chamber #:     | Chamber B            |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.681                   | -66.57              | Pk  | 33.2           | -29.9        | 11.6         | -51.67                  | -13   | -38.67      | V        |
| 3.711                   | -66.34              | Pk  | 33.3           | -29.8        | 11.1         | -51.74                  | -13   | -38.74      | H        |
| 5.478                   | -69.28              | Pk  | 34.9           | -27.8        | 11.3         | -50.88                  | -13   | -37.88      | V        |
| 5.550                   | -69.16              | Pk  | 34.8           | -28.1        | 10.8         | -51.66                  | -13   | -38.66      | H        |
| 7.543                   | -71.2               | Pk  | 35.8           | -24.5        | 10.9         | -49.00                  | -13   | -36.00      | V        |
| 7.554                   | -70.61              | Pk  | 35.7           | -24.4        | 10.9         | -48.41                  | -13   | -35.41      | H        |
| Mid Channel 1880.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.696                   | -67.12              | Pk  | 33.2           | -29.6        | 11.7         | -51.82                  | -13   | -38.82      | V        |
| 3.706                   | -66.65              | Pk  | 33.3           | -29.9        | 11.2         | -52.05                  | -13   | -39.05      | H        |
| 5.569                   | -68.36              | Pk  | 34.9           | -28          | 11.1         | -50.36                  | -13   | -37.36      | V        |
| 5.574                   | -68.63              | Pk  | 34.8           | -28.1        | 10.8         | -51.13                  | -13   | -38.13      | H        |
| 7.442                   | -70.82              | Pk  | 35.7           | -24.6        | 11.2         | -48.52                  | -13   | -35.52      | V        |
| 7.464                   | -71.28              | Pk  | 35.7           | -24.7        | 10.6         | -49.68                  | -13   | -36.68      | H        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.858                   | -67.76              | Pk  | 33.7           | -29.6        | 12           | -51.66                  | -13   | -38.66      | H        |
| 3.871                   | -66.51              | Pk  | 33.6           | -29.4        | 11.8         | -50.51                  | -13   | -37.51      | V        |
| 5.687                   | -68.21              | Pk  | 34.8           | -27.7        | 10.3         | -50.81                  | -13   | -37.81      | V        |
| 5.704                   | -69.45              | Pk  | 34.9           | -27.6        | 10.6         | -51.55                  | -13   | -38.55      | H        |
| 7.436                   | -70.62              | Pk  | 35.8           | -24.5        | 11.3         | -48.02                  | -13   | -35.02      | V        |
| 7.438                   | -71.34              | Pk  | 35.8           | -24.5        | 11.1         | -48.94                  | -13   | -35.94      | H        |

Pk - Peak detector

### 9.1.3. WCDMA

#### WCDMA BAND 5

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 5/31/19             |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 5 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.663                  | -65.92              | Pk  | 28.8           | -32.4        | 12.2         | -57.32                  | -13   | -44.32      | H        |
| 1.667                  | -65.71              | Pk  | 28.8           | -32.4        | 11.6         | -57.71                  | -13   | -44.71      | V        |
| 2.360                  | -67.09              | Pk  | 32             | -31.5        | 12.4         | -54.19                  | -13   | -41.19      | V        |
| 2.364                  | -66.23              | Pk  | 32             | -31.5        | 13.1         | -52.63                  | -13   | -39.63      | H        |
| 3.362                  | -67.02              | Pk  | 32.8           | -30.3        | 11.1         | -53.42                  | -13   | -40.42      | H        |
| 3.376                  | -67.46              | Pk  | 32.8           | -30.2        | 12           | -52.86                  | -13   | -39.86      | V        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.713                  | -65.39              | Pk  | 29.2           | -32.3        | 13.1         | -55.39                  | -13   | -42.39      | V        |
| 1.718                  | -65.58              | Pk  | 29.4           | -32.3        | 11.8         | -56.68                  | -13   | -43.68      | H        |
| 2.630                  | -67.11              | Pk  | 32.6           | -31.1        | 11.9         | -53.71                  | -13   | -40.71      | H        |
| 2.637                  | -67.39              | Pk  | 32.7           | -31          | 12.8         | -52.89                  | -13   | -39.89      | V        |
| 3.717                  | -65.14              | Pk  | 33.3           | -29.9        | 11           | -50.74                  | -13   | -37.74      | V        |
| 3.775                  | -65.39              | Pk  | 33.6           | -29.9        | 11.3         | -50.39                  | -13   | -37.39      | H        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.872                  | -75.02              | Pk  | 31             | -32          | 12           | -64.02                  | -13   | -51.02      | H        |
| 1.879                  | -66.69              | Pk  | 30.8           | -32          | 11.3         | -56.59                  | -13   | -43.59      | V        |
| 2.362                  | -67.73              | Pk  | 32             | -31.5        | 12.4         | -54.83                  | -13   | -41.83      | V        |
| 2.364                  | -67.76              | Pk  | 32             | -31.4        | 13.1         | -54.06                  | -13   | -41.06      | H        |
| 3.052                  | -67.6               | Pk  | 33.2           | -30.8        | 12.1         | -53.10                  | -13   | -40.10      | H        |
| 3.057                  | -67.36              | Pk  | 33.3           | -30.7        | 11.8         | -52.96                  | -13   | -39.96      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 5 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.652                  | -67                 | Pk  | 28.7           | -32.4        | 11.2         | -59.50                  | -13   | -46.50      | V        |
| 1.661                  | -66.45              | Pk  | 28.8           | -32.4        | 12.2         | -57.85                  | -13   | -44.85      | H        |
| 2.535                  | -67.51              | Pk  | 32.6           | -31.4        | 12           | -54.31                  | -13   | -41.31      | V        |
| 2.545                  | -67.74              | Pk  | 32.6           | -31.5        | 11.9         | -54.74                  | -13   | -41.74      | H        |
| 3.339                  | -67.44              | Pk  | 32.8           | -30.2        | 11           | -53.84                  | -13   | -40.84      | V        |
| 3.342                  | -71.82              | Pk  | 32.8           | -30.3        | 10.5         | -58.82                  | -13   | -45.82      | H        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.639                  | -66.53              | Pk  | 28.6           | -32.3        | 11.4         | -58.83                  | -13   | -45.83      | V        |
| 1.654                  | -66.61              | Pk  | 28.7           | -32.4        | 12.2         | -58.11                  | -13   | -45.11      | H        |
| 2.502                  | -67.61              | Pk  | 32.6           | -31.5        | 11.4         | -55.11                  | -13   | -42.11      | V        |
| 2.506                  | -67.67              | Pk  | 32.7           | -31.4        | 11.3         | -55.07                  | -13   | -42.07      | H        |
| 3.365                  | -68.11              | Pk  | 32.8           | -30.2        | 11.1         | -54.41                  | -13   | -41.41      | H        |
| 3.368                  | -68.34              | Pk  | 32.8           | -30.1        | 11.6         | -54.04                  | -13   | -41.04      | V        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.659                  | -66.95              | Pk  | 28.8           | -32.4        | 11.7         | -58.85                  | -13   | -45.85      | V        |
| 1.671                  | -66.48              | Pk  | 28.8           | -32.3        | 12.7         | -57.28                  | -13   | -44.28      | H        |
| 2.488                  | -67.66              | Pk  | 32.6           | -31.5        | 11.5         | -55.06                  | -13   | -42.06      | V        |
| 2.508                  | -68.18              | Pk  | 32.7           | -31.4        | 11.4         | -55.48                  | -13   | -42.48      | H        |
| 3.348                  | -68.48              | Pk  | 32.8           | -30.1        | 11.1         | -54.68                  | -13   | -41.68      | V        |
| 3.360                  | -67.69              | Pk  | 32.8           | -30.2        | 11           | -54.09                  | -13   | -41.09      | H        |

Pk - Peak detector

**WCDMA BAND 2**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 5/31/19             |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.815                   | -66.98              | Pk  | 33.7           | -29.5        | 11.2         | -51.58                  | -13   | -38.58      | V        |
| 3.822                   | -65.62              | Pk  | 33.7           | -29.4        | 11.5         | -49.82                  | -13   | -36.82      | H        |
| 5.822                   | -68.9               | Pk  | 35.1           | -27.3        | 10.9         | -50.20                  | -13   | -37.20      | V        |
| 5.827                   | -68.88              | Pk  | 35.1           | -27.3        | 10.5         | -50.58                  | -13   | -37.58      | H        |
| 7.553                   | -70.99              | Pk  | 35.7           | -24.4        | 10.9         | -48.79                  | -13   | -35.79      | H        |
| 7.571                   | -71.21              | Pk  | 35.8           | -24.3        | 11           | -48.71                  | -13   | -35.71      | V        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.87                    | -66.43              | Pk  | 33.6           | -29.4        | 11.7         | -50.53                  | -13   | -37.53      | H        |
| 3.872                   | -65.97              | Pk  | 33.6           | -29.5        | 12.1         | -49.77                  | -13   | -36.77      | V        |
| 5.526                   | -67.32              | Pk  | 34.8           | -28          | 11.3         | -49.22                  | -13   | -36.22      | V        |
| 5.55                    | -68.63              | Pk  | 34.8           | -28.1        | 10.8         | -51.13                  | -13   | -38.13      | H        |
| 7.265                   | -69.76              | Pk  | 35.8           | -25          | 10.6         | -48.36                  | -13   | -35.36      | H        |
| 7.287                   | -70.14              | Pk  | 35.8           | -25.1        | 10.9         | -48.54                  | -13   | -35.54      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.801                   | -66.79              | Pk  | 33.7           | -29.6        | 11.3         | -51.39                  | -13   | -38.39      | H        |
| 3.789                   | -75.69              | Av  | 33.6           | -29.7        | 11.5         | -60.29                  | -13   | -47.29      | V        |
| 5.216                   | -68.18              | Pk  | 34.6           | -28.2        | 11.3         | -50.48                  | -13   | -37.48      | V        |
| 5.256                   | -69.51              | Pk  | 34.8           | -28.1        | 10.9         | -51.91                  | -13   | -38.91      | H        |
| 7.599                   | -70.61              | Pk  | 35.7           | -24.4        | 10.9         | -48.41                  | -13   | -35.41      | V        |
| 7.613                   | -71.4               | Pk  | 35.8           | -24.4        | 10.8         | -49.20                  | -13   | -36.20      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.693                   | -64.92              | Pk  | 33.2           | -29.7        | 11.3         | -50.12                  | -13   | -37.12      | H        |
| 3.693                   | -66.44              | Pk  | 33.2           | -29.7        | 11.6         | -51.34                  | -13   | -38.34      | V        |
| 5.578                   | -67.34              | Pk  | 34.9           | -28          | 10.7         | -49.74                  | -13   | -36.74      | V        |
| 5.615                   | -69.04              | Pk  | 34.9           | -28          | 10.5         | -51.64                  | -13   | -38.64      | H        |
| 7.252                   | -70.66              | Pk  | 35.9           | -24.9        | 11.3         | -48.36                  | -13   | -35.36      | V        |
| 7.260                   | -69.38              | Pk  | 35.8           | -25          | 10.5         | -48.08                  | -13   | -35.08      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.689                   | -66.43              | Pk  | 33.2           | -29.7        | 11.7         | -51.23                  | -13   | -38.23      | V        |
| 3.710                   | -66.88              | Pk  | 33.3           | -29.8        | 11.2         | -52.18                  | -13   | -39.18      | H        |
| 5.524                   | -68.43              | Pk  | 34.8           | -28.1        | 11.3         | -50.43                  | -13   | -37.43      | V        |
| 5.538                   | -69.2               | Pk  | 34.8           | -28.1        | 11.2         | -51.30                  | -13   | -38.30      | H        |
| 7.423                   | -71.05              | Pk  | 35.7           | -24.5        | 10.8         | -49.05                  | -13   | -36.05      | H        |
| 7.424                   | -71.29              | Pk  | 35.7           | -24.6        | 11.2         | -48.99                  | -13   | -35.99      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.689                   | -66.89              | Pk  | 33.2           | -29.7        | 11.7         | -51.69                  | -13   | -38.69      | V        |
| 3.715                   | -66.8               | Pk  | 33.3           | -29.9        | 10.8         | -52.60                  | -13   | -39.60      | H        |
| 5.575                   | -68.42              | Pk  | 34.9           | -28.1        | 10.7         | -50.92                  | -13   | -37.92      | V        |
| 5.580                   | -68.00              | Pk  | 34.9           | -28          | 10.7         | -50.40                  | -13   | -37.40      | H        |
| 7.448                   | -70.91              | Pk  | 35.7           | -24.6        | 11.2         | -48.61                  | -13   | -35.61      | V        |
| 7.448                   | -70.35              | Pk  | 35.7           | -24.6        | 10.8         | -48.45                  | -13   | -35.45      | H        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 5/31/19             |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.498                   | -67.07              | Pk  | 33.7           | -30.3        | 11.6         | -52.07                  | -13   | -39.07      | V        |
| 3.505                   | -67.67              | Pk  | 34.2           | -30.2        | 11.5         | -52.17                  | -13   | -39.17      | H        |
| 5.117                   | -67.18              | Pk  | 34.5           | -28.5        | 10.9         | -50.28                  | -13   | -37.28      | V        |
| 5.139                   | -67.95              | Pk  | 34.6           | -28.6        | 10.9         | -51.05                  | -13   | -38.05      | H        |
| 6.817                   | -70.19              | Pk  | 35.8           | -25.3        | 10.6         | -49.09                  | -13   | -36.09      | V        |
| 6.825                   | -70.29              | Pk  | 35.8           | -25.1        | 10.6         | -48.99                  | -13   | -35.99      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.453                   | -67.08              | Pk  | 32.8           | -30.1        | 11.7         | -52.68                  | -13   | -39.68      | V        |
| 3.458                   | -66.61              | Pk  | 32.8           | -30.2        | 10.9         | -53.11                  | -13   | -40.11      | H        |
| 5.185                   | -67.76              | Pk  | 34.6           | -28.5        | 11.1         | -50.56                  | -13   | -37.56      | V        |
| 5.212                   | -67.74              | Pk  | 34.7           | -28.2        | 11.3         | -49.94                  | -13   | -36.94      | H        |
| 6.931                   | -70.58              | Pk  | 36             | -25.1        | 10.7         | -48.98                  | -13   | -35.98      | H        |
| 6.933                   | -70.44              | Pk  | 36             | -25.1        | 11.3         | -48.24                  | -13   | -35.24      | V        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.495                   | -67.77              | Pk  | 33.4           | -30.3        | 11.8         | -52.87                  | -13   | -39.87      | V        |
| 3.503                   | -66.36              | Pk  | 34.2           | -30.3        | 11.6         | -50.86                  | -13   | -37.86      | H        |
| 5.223                   | -68.66              | Pk  | 34.7           | -28.1        | 11.2         | -50.86                  | -13   | -37.86      | V        |
| 5.237                   | -68.61              | Pk  | 34.7           | -28.2        | 11.2         | -50.91                  | -13   | -37.91      | H        |
| 7.042                   | -69.57              | Pk  | 36             | -25.2        | 10.5         | -48.27                  | -13   | -35.27      | V        |
| 7.083                   | -70.29              | Pk  | 36             | -25.0        | 10.7         | -48.59                  | -13   | -35.59      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.392                   | -66.98              | Pk  | 32.7           | -30          | 11.1         | -53.18                  | -13   | -40.18      | V        |
| 3.409                   | -68.04              | Pk  | 32.8           | -30.2        | 11.3         | -54.14                  | -13   | -41.14      | H        |
| 5.103                   | -67.44              | Pk  | 34.5           | -28.4        | 11.4         | -49.94                  | -13   | -36.94      | V        |
| 5.132                   | -68.04              | Pk  | 34.5           | -28.6        | 10.7         | -51.44                  | -13   | -38.44      | H        |
| 6.764                   | -70.59              | Pk  | 36             | -25.5        | 10.8         | -49.29                  | -13   | -36.29      | V        |
| 6.786                   | -70.37              | Pk  | 35.9           | -25.8        | 10.1         | -50.17                  | -13   | -37.17      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.427                   | -67.33              | Pk  | 32.8           | -30.1        | 12.2         | -52.43                  | -13   | -39.43      | V        |
| 3.441                   | -68.35              | Pk  | 32.8           | -30.2        | 11.7         | -54.05                  | -13   | -41.05      | H        |
| 5.142                   | -66.73              | Pk  | 34.5           | -28.6        | 11.3         | -49.53                  | -13   | -36.53      | V        |
| 5.163                   | -67.68              | Pk  | 34.5           | -28.5        | 11.6         | -50.08                  | -13   | -37.08      | H        |
| 6.823                   | -70.76              | Pk  | 35.8           | -25.2        | 10.7         | -49.46                  | -13   | -36.46      | V        |
| 6.827                   | -71.37              | Pk  | 35.8           | -25.1        | 10.6         | -50.07                  | -13   | -37.07      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.424                   | -68.45              | Pk  | 32.7           | -30.1        | 12           | -53.85                  | -13   | -40.85      | V        |
| 3.425                   | -68.53              | Pk  | 32.7           | -30.1        | 12.1         | -53.83                  | -13   | -40.83      | H        |
| 5.105                   | -67.6               | Pk  | 34.5           | -28.3        | 11.3         | -50.10                  | -13   | -37.10      | V        |
| 5.149                   | -67.98              | Pk  | 34.5           | -28.6        | 11           | -51.08                  | -13   | -38.08      | H        |
| 6.861                   | -71.2               | Pk  | 35.9           | -25.2        | 10.8         | -49.70                  | -13   | -36.70      | V        |
| 6.876                   | -70.89              | Pk  | 35.9           | -24.9        | 10.7         | -49.19                  | -13   | -36.19      | H        |

Pk - Peak detector

## 9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

### 9.2.1. GSM

#### GSM 850MHz

|                |             |
|----------------|-------------|
| Company:       |             |
| Project #:     | 12696946    |
| Date:          | 4/5/2019    |
| Test Engineer: | 12501       |
| Configuration: | EUT Only    |
| Mode:          | GSM850 GPRS |
| Chamber #:     | Chamber B   |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 1.713                 | -65.33              | Pk  | 29.2           | -32.3        | 13.1         | -55.33                  | -13   | -42.33      | V        |
| 1.733                 | -65.44              | Pk  | 29.6           | -32.4        | 12.5         | -55.74                  | -13   | -42.74      | H        |
| 2.565                 | -67.42              | Pk  | 32.3           | -31.3        | 12.5         | -53.92                  | -13   | -40.92      | H        |
| 2.634                 | -66.4               | Pk  | 32.4           | -31          | 13.0         | -52.00                  | -13   | -39.00      | V        |
| 3.209                 | -66.82              | Pk  | 33             | -30.6        | 11.8         | -52.62                  | -13   | -39.62      | H        |
| 3.226                 | -65.84              | Pk  | 32.9           | -30.6        | 11.0         | -52.54                  | -13   | -39.54      | V        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.346                 | -71.96              | Pk  | 32.9           | -30.2        | 11.0         | -58.26                  | -13   | -45.26      | V        |
| 1.642                 | -65.19              | Pk  | 28.6           | -32.3        | 12.3         | -56.59                  | -13   | -43.59      | H        |
| 1.648                 | -65.94              | Pk  | 28.7           | -32.4        | 12.2         | -57.44                  | -13   | -44.44      | H        |
| 1.718                 | -65.62              | Pk  | 29.3           | -32.3        | 13.6         | -55.02                  | -13   | -42.02      | V        |
| 2.615                 | -66.88              | Pk  | 32.4           | -31          | 12.0         | -53.48                  | -13   | -40.48      | V        |
| 3.313                 | -66.74              | Pk  | 32.8           | -30.3        | 11.5         | -52.74                  | -13   | -39.74      | H        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 1.770                 | -65.86              | Pk  | 29.8           | -32          | 11.8         | -56.26                  | -13   | -43.26      | H        |
| 1.785                 | -65.63              | Pk  | 30.1           | -32.4        | 12.9         | -55.03                  | -13   | -42.03      | V        |
| 2.395                 | -66.65              | Pk  | 32             | -31.4        | 13.2         | -52.85                  | -13   | -39.85      | V        |
| 2.460                 | -66.3               | Pk  | 32.4           | -31.6        | 12.4         | -53.10                  | -13   | -40.10      | H        |
| 3.397                 | -67.92              | Pk  | 32.8           | -30.1        | 11.1         | -54.12                  | -13   | -41.12      | V        |
| 3.415                 | -67.09              | Pk  | 32.8           | -30.3        | 11.8         | -52.79                  | -13   | -39.79      | H        |

Pk - Peak detector

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12696946     |
| Date:          | 4/5/2019     |
| Test Engineer: | 12501        |
| Configuration: | EUT Only     |
| Mode:          | GSM850 EGPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)       | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-----------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.2MHz |                     |     |                |              |              |                         |       |             |          |
| 2.375                 | -66.99              | Pk  | 31.9           | -31.2        | 12.8         | -53.49                  | -13   | -40.49      | H        |
| 1.715                 | -65.26              | Pk  | 29.3           | -32.3        | 13.2         | -55.06                  | -13   | -42.06      | V        |
| 1.733                 | -66.16              | Pk  | 29.6           | -32.4        | 12.6         | -56.36                  | -13   | -43.36      | H        |
| 2.426                 | -66.91              | Pk  | 32.3           | -31.4        | 11.8         | -54.21                  | -13   | -41.21      | V        |
| 3.194                 | -65.71              | Pk  | 33             | -30.6        | 11.1         | -52.21                  | -13   | -39.21      | V        |
| 3.242                 | -66.37              | Pk  | 32.9           | -30.6        | 11.3         | -52.77                  | -13   | -39.77      | H        |
| Mid Channel 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.709                 | -65.39              | Pk  | 29.2           | -32.3        | 13.1         | -55.39                  | -13   | -42.39      | V        |
| 1.641                 | -64.33              | Pk  | 28.6           | -32.3        | 12.2         | -55.83                  | -13   | -42.83      | H        |
| 2.396                 | -67.12              | Pk  | 32             | -31.4        | 13.2         | -53.32                  | -13   | -40.32      | V        |
| 2.511                 | -67.85              | Pk  | 32.3           | -31.5        | 11.5         | -55.55                  | -13   | -42.55      | H        |
| 3.297                 | -66.01              | Pk  | 32.9           | -30.4        | 11.3         | -52.21                  | -13   | -39.21      | V        |
| 3.378                 | -67.63              | Pk  | 32.8           | -30.1        | 11.3         | -53.63                  | -13   | -40.63      | H        |
| High Channel 848.8MHz |                     |     |                |              |              |                         |       |             |          |
| 1.667                 | -67.35              | Pk  | 28.7           | -32.4        | 12.5         | -58.55                  | -13   | -45.55      | H        |
| 1.679                 | -64.77              | Pk  | 28.7           | -32.4        | 10.9         | -57.57                  | -13   | -44.57      | V        |
| 3.550                 | -66.9               | Pk  | 33.1           | -30.2        | 11.5         | -52.50                  | -13   | -39.50      | V        |
| 2.563                 | -67.18              | Pk  | 32.3           | -31.3        | 12.3         | -53.88                  | -13   | -40.88      | H        |
| 2.633                 | -66.93              | Pk  | 32.4           | -31.1        | 13           | -52.63                  | -13   | -39.63      | V        |
| 3.465                 | -67.33              | Pk  | 32.9           | -30.1        | 11.1         | -53.43                  | -13   | -40.43      | H        |

Pk - Peak detector

**GSM 1900MHz**

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12696946     |
| Date:          | 4/8/19       |
| Test Engineer: | 12501        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.735                   | -66.91              | Pk  | 33.3           | -29.9        | 11.5         | -52.01                  | -13   | -39.01      | H        |
| 7.427                   | -71.2               | Pk  | 35.7           | -24.6        | 10.9         | -49.20                  | -13   | -36.20      | H        |
| 3.792                   | -66.9               | Pk  | 33.5           | -29.7        | 11.5         | -51.60                  | -13   | -38.60      | V        |
| 7.476                   | -71.51              | Pk  | 35.6           | -24.6        | 10.8         | -49.71                  | -13   | -36.71      | V        |
| 5.540                   | -68.75              | Pk  | 34.8           | -28.2        | 11.2         | -50.95                  | -13   | -37.95      | H        |
| 5.574                   | -68.5               | Pk  | 34.9           | -28.1        | 10.8         | -50.90                  | -13   | -37.90      | V        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |       |             |          |
| 3.762                   | -66.12              | Pk  | 33.4           | -29.7        | 11.7         | -50.72                  | -13   | -37.72      | H        |
| 7.518                   | -71.24              | Pk  | 35.6           | -24.5        | 10.4         | -49.74                  | -13   | -36.74      | H        |
| 3.770                   | -66.79              | Pk  | 33.4           | -29.7        | 11.2         | -51.89                  | -13   | -38.89      | V        |
| 7.521                   | -71.19              | Pk  | 35.6           | -24.5        | 10.6         | -49.49                  | -13   | -36.49      | V        |
| 5.638                   | -68.26              | Pk  | 35             | -28          | 10.8         | -50.46                  | -13   | -37.46      | V        |
| 5.639                   | -68.12              | Pk  | 35             | -28          | 10.8         | -50.32                  | -13   | -37.32      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.822                   | -65.83              | Pk  | 33.5           | -29.4        | 11.5         | -50.23                  | -13   | -37.23      | H        |
| 7.641                   | -70.97              | Pk  | 35.7           | -24.5        | 10.7         | -49.07                  | -13   | -36.07      | H        |
| 3.818                   | -66.03              | Pk  | 33.5           | -29.5        | 11.4         | -50.63                  | -13   | -37.63      | V        |
| 7.641                   | -69.9               | Pk  | 35.7           | -24.5        | 11.2         | -47.50                  | -13   | -34.50      | V        |
| 5.730                   | -69.58              | Pk  | 35             | -27.5        | 10.6         | -51.48                  | -13   | -38.48      | V        |
| 5.732                   | -68.71              | Pk  | 35             | -27.5        | 10.7         | -50.51                  | -13   | -37.51      | H        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12696946      |
| Date:          | 4/26/19       |
| Test Engineer: | 12501         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber B     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.701                   | -67.07              | Pk  | 33.1           | -29.8        | 11.2         | -52.57                  | -13 | -39.57      | H        |
| 7.385                   | -71.02              | Pk  | 35.6           | -24.5        | 10.9         | -49.02                  | -13 | -36.02      | H        |
| 3.699                   | -66.61              | Pk  | 33.1           | -29.6        | 11.5         | -51.61                  | -13 | -38.61      | V        |
| 7.403                   | -71.16              | Pk  | 35.6           | -24.7        | 10.7         | -49.56                  | -13 | -36.56      | V        |
| 5.507                   | -68.49              | Pk  | 34.6           | -28.1        | 11.1         | -50.89                  | -13 | -37.89      | V        |
| 5.552                   | -67.79              | Pk  | 34.8           | -28.1        | 10.8         | -50.29                  | -13 | -37.29      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.765                   | -65.8               | Pk  | 33.4           | -29.7        | 11.6         | -50.50                  | -13 | -37.50      | H        |
| 7.509                   | -72.05              | Pk  | 35.7           | -24.5        | 10.6         | -50.25                  | -13 | -37.25      | H        |
| 3.731                   | -66.61              | Pk  | 33.3           | -29.9        | 11.3         | -51.91                  | -13 | -38.91      | V        |
| 7.481                   | -70.07              | Pk  | 35.7           | -24.5        | 10.8         | -48.07                  | -13 | -35.07      | V        |
| 5.629                   | -68.45              | Pk  | 35             | -28.1        | 10.7         | -50.85                  | -13 | -37.85      | V        |
| 5.643                   | -67.96              | Pk  | 35             | -28          | 10.6         | -50.36                  | -13 | -37.36      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 1.667                   | -67.35              | Pk  | 28.7           | -32.4        | 12.5         | -58.55                  | -13 | -45.55      | H        |
| 1.679                   | -64.77              | Pk  | 28.7           | -32.4        | 10.9         | -57.57                  | -13 | -44.57      | V        |
| 3.550                   | -66.9               | Pk  | 33.1           | -30.2        | 11.5         | -52.50                  | -13 | -39.50      | V        |
| 2.563                   | -67.18              | Pk  | 32.3           | -31.3        | 12.3         | -53.88                  | -13 | -40.88      | H        |
| 2.633                   | -66.93              | Pk  | 32.4           | -31.1        | 13           | -52.63                  | -13 | -39.63      | V        |
| 3.465                   | -67.33              | Pk  | 32.9           | -30.1        | 11.1         | -53.43                  | -13 | -40.43      | H        |

Pk - Peak detector

## 9.2.2. CDMA

### CDMA BC10

|                |                 |
|----------------|-----------------|
| Company:       |                 |
| Project #:     | 12696946        |
| Date:          | 6/3/19          |
| Test Engineer: | 23567           |
| Configuration: | EUT             |
| Mode:          | CDMA BC10 1xRTT |
| Chamber #:     | Chamber B       |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.617                  | -65.84              | Pk  | 28.3           | -32.5        | 11.2         | -58.84                  | -13   | -45.84      | V        |
| 1.629                  | -64.63              | Pk  | 28.5           | -32.3        | 11           | -57.43                  | -13   | -44.43      | H        |
| 2.432                  | -66.45              | Pk  | 32.6           | -31.4        | 11.7         | -53.55                  | -13   | -40.55      | V        |
| 2.453                  | -66.47              | Pk  | 32.5           | -31.5        | 12.4         | -53.07                  | -13   | -40.07      | H        |
| 3.270                  | -67.01              | Pk  | 32.9           | -30.5        | 10.2         | -54.41                  | -13   | -41.41      | V        |
| 3.284                  | -67.21              | Pk  | 32.9           | -30.3        | 10.9         | -53.71                  | -13   | -40.71      | H        |
| Mid Channel 820.00MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.644                  | -65.61              | Pk  | 28.7           | -32.4        | 11.5         | -57.81                  | -13   | -44.81      | V        |
| 1.646                  | -66.39              | Pk  | 28.7           | -32.4        | 12.3         | -57.79                  | -13   | -44.79      | H        |
| 2.45                   | -66.55              | Pk  | 32.5           | -31.5        | 12.2         | -53.35                  | -13   | -40.35      | H        |
| 2.459                  | -67.48              | Pk  | 32.5           | -31.6        | 11.6         | -54.98                  | -13   | -41.98      | V        |
| 3.28                   | -67.47              | Pk  | 32.9           | -30.4        | 10.6         | -54.37                  | -13   | -41.37      | H        |
| 3.289                  | -71.65              | Pk  | 32.9           | -30.4        | 11.2         | -57.95                  | -13   | -44.95      | V        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.634                  | -65.54              | Pk  | 28.5           | -32.3        | 11.1         | -58.24                  | -13   | -45.24      | V        |
| 1.641                  | -66.54              | Pk  | 28.6           | -32.3        | 12.3         | -57.94                  | -13   | -44.94      | H        |
| 2.446                  | -67.21              | Pk  | 32.5           | -31.5        | 12.2         | -54.01                  | -13   | -41.01      | V        |
| 2.459                  | -66.58              | Pk  | 32.5           | -31.6        | 12.4         | -53.28                  | -13   | -40.28      | H        |
| 3.198                  | -67.58              | Pk  | 32.9           | -30.5        | 11           | -54.18                  | -13   | -41.18      | V        |
| 3.238                  | -66.87              | Pk  | 32.9           | -30.6        | 11.4         | -53.17                  | -13   | -40.17      | H        |

Pk - Peak detector

|                |                       |
|----------------|-----------------------|
| Company:       |                       |
| Project #:     | 12696946              |
| Date:          | 6/3/19                |
| Test Engineer: | 23567                 |
| Configuration: | EUT Only              |
| Mode:          | CDMA BC10 EV-DO Rev A |
| Chamber #:     | Chamber B             |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 817.25MHz |                     |     |                |              |              |                         |       |             |          |
| 1.615                  | -65.54              | Pk  | 28.3           | -32.5        | 11.3         | -58.44                  | -13   | -45.44      | V        |
| 1.620                  | -65.87              | Pk  | 28.3           | -32.5        | 11.3         | -58.77                  | -13   | -45.77      | H        |
| 2.436                  | -66.66              | Pk  | 32.5           | -31.4        | 11.6         | -53.96                  | -13   | -40.96      | V        |
| 2.450                  | -67.8               | Pk  | 32.5           | -31.5        | 12.3         | -54.50                  | -13   | -41.50      | H        |
| 3.247                  | -67.52              | Pk  | 33             | -30.6        | 11.2         | -53.92                  | -13   | -40.92      | H        |
| 3.251                  | -66.65              | Pk  | 32.9           | -30.5        | 10.7         | -53.55                  | -13   | -40.55      | V        |
| Mid Channel 820MHz     |                     |     |                |              |              |                         |       |             |          |
| 1.635                  | -65.43              | Pk  | 28.5           | -32.4        | 11.2         | -58.13                  | -13   | -45.13      | V        |
| 1.645                  | -66.04              | Pk  | 28.7           | -32.4        | 12.3         | -57.44                  | -13   | -44.44      | H        |
| 2.468                  | -67.7               | Pk  | 32.6           | -31.5        | 11.1         | -55.50                  | -13   | -42.50      | V        |
| 2.475                  | -66.55              | Pk  | 32.5           | -31.5        | 11.7         | -53.85                  | -13   | -40.85      | H        |
| 3.276                  | -67.35              | Pk  | 32.9           | -30.5        | 10.8         | -54.15                  | -13   | -41.15      | V        |
| 3.286                  | -67.29              | Pk  | 32.9           | -30.4        | 11           | -53.79                  | -13   | -40.79      | H        |
| High Channel 822.75MHz |                     |     |                |              |              |                         |       |             |          |
| 1.636                  | -66.38              | Pk  | 28.5           | -32.4        | 11.3         | -58.98                  | -13   | -45.98      | V        |
| 1.648                  | -65.31              | Pk  | 28.7           | -32.4        | 12.1         | -56.91                  | -13   | -43.91      | H        |
| 2.442                  | -66.83              | Pk  | 32.5           | -31.5        | 12           | -53.83                  | -13   | -40.83      | V        |
| 2.461                  | -68.02              | Pk  | 32.6           | -31.6        | 12.4         | -54.62                  | -13   | -41.62      | H        |
| 3.232                  | -66.33              | Pk  | 32.9           | -30.5        | 11.5         | -52.43                  | -13   | -39.43      | H        |
| 3.237                  | -66.26              | Pk  | 32.9           | -30.6        | 11.3         | -52.66                  | -13   | -39.66      | V        |

Pk - Peak detector

**CDMA BC0**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12696946       |
| Date:          | 6/3/19         |
| Test Engineer: | 23567          |
| Configuration: | EUT Only       |
| Mode:          | CDMA BC0 1xRTT |
| Chamber #:     | Chamber B      |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.659                  | -65.08              | Pk  | 28.8           | -32.4        | 11.7         | -56.98                  | -13   | -43.98      | V        |
| 1.664                  | -65.48              | Pk  | 28.7           | -32.4        | 12.3         | -56.88                  | -13   | -43.88      | H        |
| 2.443                  | -67.61              | Pk  | 32.5           | -31.4        | 12.1         | -54.41                  | -13   | -41.41      | V        |
| 2.459                  | -65.58              | Pk  | 32.5           | -31.6        | 12.4         | -52.28                  | -13   | -39.28      | H        |
| 3.273                  | -66.21              | Pk  | 32.9           | -30.4        | 10.6         | -53.11                  | -13   | -40.11      | V        |
| 3.297                  | -67.62              | Pk  | 32.9           | -30.4        | 11.4         | -53.72                  | -13   | -40.72      | H        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.633                  | -65.85              | Pk  | 28.5           | -32.3        | 11           | -58.65                  | -13   | -45.65      | V        |
| 1.645                  | -66.25              | Pk  | 28.7           | -32.4        | 12.3         | -57.65                  | -13   | -44.65      | H        |
| 2.448                  | -67.96              | Pk  | 32.5           | -31.5        | 12.1         | -54.86                  | -13   | -41.86      | H        |
| 2.450                  | -67.36              | Pk  | 32.5           | -31.5        | 11.9         | -54.46                  | -13   | -41.46      | V        |
| 3.285                  | -67.44              | Pk  | 32.9           | -30.4        | 11           | -53.94                  | -13   | -40.94      | H        |
| 3.287                  | -67.19              | Pk  | 32.9           | -30.4        | 11.1         | -53.59                  | -13   | -40.59      | V        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.636                  | -65.67              | Pk  | 28.5           | -32.4        | 11.2         | -58.37                  | -13   | -45.37      | V        |
| 1.641                  | -66.03              | Pk  | 28.6           | -32.3        | 12.2         | -57.53                  | -13   | -44.53      | H        |
| 2.441                  | -66.44              | Pk  | 32.5           | -31.5        | 11.8         | -53.64                  | -13   | -40.64      | V        |
| 2.452                  | -66.67              | Pk  | 32.5           | -31.5        | 12.3         | -53.37                  | -13   | -40.37      | H        |
| 3.297                  | -67.07              | Pk  | 32.9           | -30.4        | 11.3         | -53.27                  | -13   | -40.27      | V        |
| 3.299                  | -67.2               | Pk  | 32.9           | -30.4        | 11.5         | -53.20                  | -13   | -40.20      | H        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12696946             |
| Date:          | 6/3/19               |
| Test Engineer: | 39006                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC0 EV-DO Rev A |
| Chamber #:     | Chamber B            |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 824.7MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.658                  | -66.7               | Pk  | 28.7           | -32.5        | 11.7         | -58.80                  | -13   | -45.80      | V        |
| 1.669                  | -66.12              | Pk  | 28.8           | -32.3        | 12.7         | -56.92                  | -13   | -43.92      | H        |
| 2.405                  | -67.65              | Pk  | 32.3           | -31.3        | 12.3         | -54.35                  | -13   | -41.35      | V        |
| 2.411                  | -67.35              | Pk  | 32.4           | -31.3        | 11.2         | -55.05                  | -13   | -42.05      | H        |
| 3.372                  | -68.03              | Pk  | 32.8           | -30.2        | 11.4         | -54.03                  | -13   | -41.03      | H        |
| 3.374                  | -67.98              | Pk  | 32.8           | -30.2        | 12           | -53.38                  | -13   | -40.38      | V        |
| Mid Channel 836.52MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.711                  | -66.99              | Pk  | 29.2           | -32.3        | 13.1         | -56.99                  | -13   | -43.99      | V        |
| 1.725                  | -66.8               | Pk  | 29.4           | -32.2        | 12.2         | -57.40                  | -13   | -44.40      | H        |
| 2.531                  | -68.28              | Pk  | 32.6           | -31.4        | 12.1         | -54.98                  | -13   | -41.98      | V        |
| 2.539                  | -67.52              | Pk  | 32.6           | -31.4        | 11.9         | -54.42                  | -13   | -41.42      | H        |
| 3.346                  | -67.58              | Pk  | 32.8           | -30.2        | 10.4         | -54.58                  | -13   | -41.58      | H        |
| 3.353                  | -67.27              | Pk  | 32.8           | -30.1        | 11.5         | -53.07                  | -13   | -40.07      | V        |
| High Channel 848.31MHz |                     |     |                |              |              |                         |       |             |          |
| 1.722                  | -66.59              | Pk  | 29.5           | -32.4        | 13.9         | -55.59                  | -13   | -42.59      | V        |
| 1.725                  | -66.6               | Pk  | 29.4           | -32.2        | 12.2         | -57.20                  | -13   | -44.20      | H        |
| 2.429                  | -67.95              | Pk  | 32.6           | -31.4        | 11.1         | -55.65                  | -13   | -42.65      | H        |
| 2.431                  | -67.85              | Pk  | 32.6           | -31.4        | 11.7         | -54.95                  | -13   | -41.95      | V        |
| 3.289                  | -67.45              | Pk  | 32.9           | -30.4        | 11.1         | -53.85                  | -13   | -40.85      | H        |
| 3.366                  | -67.56              | Pk  | 32.8           | -30.2        | 11.6         | -53.36                  | -13   | -40.36      | V        |

Pk - Peak detector

**CDMA BC1**

|                |                |
|----------------|----------------|
| Company:       |                |
| Project #:     | 12696946       |
| Date:          | 6/3/19         |
| Test Engineer: | 23567          |
| Configuration: | EUT            |
| Mode:          | CDMA BC1 1xRTT |
| Chamber #:     | Chamber B      |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.674                   | -67.27              | Pk  | 33.2           | -29.9        | 11.1         | -52.87                  | -13   | -39.87      | V        |
| 3.687                   | -67.11              | Pk  | 33.2           | -29.8        | 11.7         | -52.01                  | -13   | -39.01      | H        |
| 5.474                   | -69.21              | Pk  | 34.9           | -27.8        | 11.3         | -50.81                  | -13   | -37.81      | V        |
| 5.481                   | -68.84              | Pk  | 34.9           | -27.8        | 10.9         | -50.84                  | -13   | -37.84      | H        |
| 7.436                   | -71.10              | Pk  | 35.8           | -24.5        | 11           | -48.80                  | -13   | -35.80      | H        |
| 7.438                   | -71.34              | Pk  | 35.8           | -24.5        | 11.3         | -48.74                  | -13   | -35.74      | V        |
| Mid Channel 1880MHz     |                     |     |                |              |              |                         |       |             |          |
| 3.719                   | -66.09              | Pk  | 33.3           | -29.9        | 11           | -51.69                  | -13   | -38.69      | H        |
| 3.719                   | -66.65              | Pk  | 33.3           | -29.9        | 11.1         | -52.15                  | -13   | -39.15      | V        |
| 5.504                   | -68.16              | Pk  | 34.9           | -27.9        | 11.1         | -50.06                  | -13   | -37.06      | V        |
| 5.534                   | -68.81              | Pk  | 34.8           | -28          | 11.2         | -50.81                  | -13   | -37.81      | H        |
| 7.385                   | -70.39              | Pk  | 35.8           | -24.5        | 11.2         | -47.89                  | -13   | -34.89      | V        |
| 7.386                   | -70.58              | Pk  | 35.7           | -24.5        | 10.8         | -48.58                  | -13   | -35.58      | H        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.685                   | -66.57              | Pk  | 33.2           | -29.8        | 12           | -51.17                  | -13   | -38.17      | V        |
| 3.701                   | -67.08              | Pk  | 33.2           | -29.8        | 11.2         | -52.48                  | -13   | -39.48      | H        |
| 5.485                   | -69.12              | Pk  | 34.9           | -27.9        | 11.2         | -50.92                  | -13   | -37.92      | V        |
| 5.523                   | -68.44              | Pk  | 34.8           | -28.1        | 11           | -50.74                  | -13   | -37.74      | H        |
| 7.312                   | -69.92              | Pk  | 35.7           | -24.9        | 11.4         | -47.72                  | -13   | -34.72      | V        |
| 7.347                   | -70.26              | Pk  | 35.8           | -24.8        | 10.7         | -48.56                  | -13   | -35.56      | H        |

Pk - Peak detector

|                |                      |
|----------------|----------------------|
| Company:       |                      |
| Project #:     | 12696946             |
| Date:          | 6/3/19               |
| Test Engineer: | 23567                |
| Configuration: | EUT Only             |
| Mode:          | CDMA BC1 EV-DO Rev A |
| Chamber #:     | Chamber B            |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1851.25MHz |                     |     |                |              |              |                         |       |             |          |
| 3.719                   | -65.77              | Pk  | 33.3           | -29.9        | 11           | -51.37                  | -13   | -38.37      | H        |
| 7.420                   | -71.28              | Pk  | 35.8           | -24.6        | 10.7         | -49.38                  | -13   | -36.38      | H        |
| 3.707                   | -66.65              | Pk  | 33.3           | -29.8        | 11.3         | -51.85                  | -13   | -38.85      | V        |
| 7.377                   | -70.55              | Pk  | 35.7           | -24.4        | 11.3         | -47.95                  | -13   | -34.95      | V        |
| 5.567                   | -67.09              | Pk  | 34.9           | -28          | 11           | -49.19                  | -13   | -36.19      | H        |
| 5.636                   | -68.40              | Pk  | 34.8           | -28.1        | 10.7         | -51.00                  | -13   | -38.00      | V        |
| Mid Channel 1880MHz     |                     |     |                |              |              |                         |       |             |          |
| 3.759                   | -66.68              | Pk  | 33.5           | -29.7        | 11.5         | -51.38                  | -13   | -38.38      | H        |
| 3.760                   | -66.12              | Pk  | 33.5           | -29.7        | 11.1         | -51.22                  | -13   | -38.22      | V        |
| 5.661                   | -68.57              | Pk  | 34.8           | -27.8        | 10.9         | -50.67                  | -13   | -37.67      | V        |
| 5.668                   | -68.79              | Pk  | 34.8           | -27.8        | 10.7         | -51.09                  | -13   | -38.09      | H        |
| 7.554                   | -70.98              | Pk  | 35.7           | -24.4        | 11.1         | -48.58                  | -13   | -35.58      | V        |
| 7.556                   | -71.22              | Pk  | 35.7           | -24.4        | 10.9         | -49.02                  | -13   | -36.02      | H        |
| High Channel 1908.75MHz |                     |     |                |              |              |                         |       |             |          |
| 3.857                   | -66.66              | Pk  | 33.7           | -29.7        | 11.4         | -51.26                  | -13   | -38.26      | V        |
| 3.879                   | -66.22              | Pk  | 33.6           | -29.4        | 11.7         | -50.32                  | -13   | -37.32      | H        |
| 5.720                   | -69.19              | Pk  | 35             | -27.5        | 10.5         | -51.19                  | -13   | -38.19      | H        |
| 5.720                   | -69.10              | Pk  | 35             | -27.5        | 10.6         | -51.00                  | -13   | -38.00      | V        |
| 7.831                   | -70.72              | Pk  | 35.8           | -24.5        | 11.2         | -48.22                  | -13   | -35.22      | V        |
| 7.853                   | -70.99              | Pk  | 35.9           | -24.6        | 11.2         | -48.49                  | -13   | -35.49      | H        |

Pk - Peak detector

### 9.2.3. WCDMA

#### WCDMA BAND 5

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 5/31/19             |
| Test Engineer: | 12501               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 5 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.261                  | -67.7               | Pk  | 33             | -30.5        | 10.5         | -54.70                  | -13   | -41.70      | V        |
| 1.645                  | -66.58              | Pk  | 28.7           | -32.4        | 11.5         | -58.78                  | -13   | -45.78      | V        |
| 1.651                  | -66.12              | Pk  | 28.7           | -32.3        | 12.1         | -57.62                  | -13   | -44.62      | H        |
| 2.472                  | -67.88              | Pk  | 32.6           | -31.5        | 11.8         | -54.98                  | -13   | -41.98      | H        |
| 2.479                  | -67.26              | Pk  | 32.6           | -31.4        | 11.4         | -54.66                  | -13   | -41.66      | V        |
| 3.273                  | -67.43              | Pk  | 32.9           | -30.4        | 10.3         | -54.63                  | -13   | -41.63      | H        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.666                  | -65.07              | Pk  | 28.7           | -32.4        | 12.4         | -56.37                  | -13   | -43.37      | H        |
| 3.336                  | -67.10              | Pk  | 32.8           | -30.1        | 10.7         | -53.70                  | -13   | -40.70      | H        |
| 1.673                  | -65.88              | Pk  | 28.9           | -32.3        | 11.3         | -57.98                  | -13   | -44.98      | V        |
| 2.503                  | -67.00              | Pk  | 32.6           | -31.5        | 11.3         | -54.60                  | -13   | -41.60      | V        |
| 2.507                  | -67.64              | Pk  | 32.7           | -31.4        | 11.3         | -55.04                  | -13   | -42.04      | H        |
| 3.339                  | -66.49              | Pk  | 32.8           | -30.2        | 11           | -52.89                  | -13   | -39.89      | V        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.692                  | -66.24              | Pk  | 28.9           | -32.3        | 12.5         | -57.14                  | -13   | -44.14      | H        |
| 1.684                  | -66.62              | Pk  | 28.9           | -32.4        | 11.1         | -59.02                  | -13   | -46.02      | V        |
| 2.527                  | -66.47              | Pk  | 32.6           | -31.5        | 12.2         | -53.17                  | -13   | -40.17      | V        |
| 2.532                  | -66.41              | Pk  | 32.6           | -31.3        | 12.1         | -53.01                  | -13   | -40.01      | H        |
| 3.373                  | -67.9               | Pk  | 32.8           | -30.2        | 11.9         | -53.40                  | -13   | -40.40      | V        |
| 3.380                  | -66.8               | PK  | 32.8           | -30          | 11.3         | -52.7                   | -13   | -39.7       | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 5 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)        | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 826.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.723                  | -66.65              | Pk  | 29.5           | -32.3        | 13.8         | -55.65                  | -13   | -42.65      | V        |
| 1.734                  | -67.59              | Pk  | 29.7           | -32.3        | 12.6         | -57.59                  | -13   | -44.59      | H        |
| 2.548                  | -69.35              | Pk  | 32.6           | -31.4        | 12.1         | -56.05                  | -13   | -43.05      | H        |
| 2.548                  | -71.35              | Pk  | 32.6           | -31.5        | 12.2         | -58.05                  | -13   | -45.05      | H        |
| 3.355                  | -68.28              | Pk  | 32.8           | -30.1        | 11.6         | -53.98                  | -13   | -40.98      | V        |
| 3.37                   | -69.29              | Pk  | 32.8           | -30.1        | 11.4         | -55.19                  | -13   | -42.19      | H        |
| Mid Channel, 836.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.712                  | -67.24              | Pk  | 29.2           | -32.3        | 13.1         | -57.24                  | -13   | -44.24      | V        |
| 1.719                  | -66.6               | Pk  | 29.4           | -32.4        | 11.8         | -57.80                  | -13   | -44.80      | H        |
| 2.530                  | -66.57              | Pk  | 32.6           | -31.4        | 12.2         | -53.17                  | -13   | -40.17      | H        |
| 2.548                  | -67.95              | Pk  | 32.6           | -31.5        | 12.1         | -54.75                  | -13   | -41.75      | V        |
| 3.422                  | -67.92              | Pk  | 32.7           | -30.1        | 11.9         | -53.42                  | -13   | -40.42      | V        |
| 3.423                  | -69.03              | Pk  | 32.7           | -30.1        | 12.1         | -54.33                  | -13   | -41.33      | H        |
| High Channel, 846.6MHz |                     |     |                |              |              |                         |       |             |          |
| 1.666                  | -66.79              | Pk  | 28.7           | -32.4        | 11.6         | -58.89                  | -13   | -45.89      | V        |
| 1.668                  | -66.75              | Pk  | 28.8           | -32.4        | 12.6         | -57.75                  | -13   | -44.75      | H        |
| 2.389                  | -68.31              | Pk  | 32.2           | -31.5        | 12.7         | -54.91                  | -13   | -41.91      | V        |
| 2.399                  | -68.04              | Pk  | 32.3           | -31.4        | 12           | -55.14                  | -13   | -42.14      | H        |
| 3.295                  | -68.54              | Pk  | 32.9           | -30.3        | 11.2         | -54.74                  | -13   | -41.74      | V        |
| 3.300                  | -69.14              | Pk  | 32.9           | -30.4        | 11.5         | -55.14                  | -13   | -42.14      | H        |

Pk - Peak detector

**WCDMA BAND 2**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 5/31/19             |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.676                   | -73.96              | Pk  | 33.2           | -29.8        | 11.2         | -59.36                  | -13   | -46.36      | V        |
| 3.698                   | -66.70              | Pk  | 33.2           | -29.6        | 11.2         | -51.90                  | -13   | -38.90      | H        |
| 5.707                   | -69.00              | Pk  | 34.8           | -27.7        | 10.7         | -51.20                  | -13   | -38.20      | V        |
| 5.734                   | -69.33              | Pk  | 34.9           | -27.5        | 10.5         | -51.43                  | -13   | -38.43      | H        |
| 7.195                   | -70.22              | Pk  | 36             | -24.9        | 10.9         | -48.22                  | -13   | -35.22      | V        |
| 7.212                   | -70.23              | Pk  | 36             | -25.2        | 10.3         | -49.13                  | -13   | -36.13      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |       |             |          |
| 3.683                   | -66.94              | Pk  | 33.2           | -29.9        | 11.9         | -51.74                  | -13   | -38.74      | V        |
| 3.703                   | -66.23              | Pk  | 33.2           | -29.8        | 11.2         | -51.63                  | -13   | -38.63      | H        |
| 5.548                   | -67.92              | Pk  | 34.8           | -28.1        | 11           | -50.22                  | -13   | -37.22      | V        |
| 5.571                   | -68.30              | Pk  | 34.9           | -28          | 11           | -50.40                  | -13   | -37.40      | H        |
| 7.411                   | -71.11              | Pk  | 35.7           | -24.7        | 10.9         | -49.21                  | -13   | -36.21      | V        |
| 7.419                   | -70.58              | Pk  | 35.8           | -24.6        | 10.7         | -48.68                  | -13   | -35.68      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.683                   | -66.43              | Pk  | 33.2           | -29.9        | 11.8         | -51.33                  | -13   | -38.33      | V        |
| 3.701                   | -66.41              | Pk  | 33.2           | -29.7        | 11.2         | -51.71                  | -13   | -38.71      | H        |
| 5.538                   | -68.37              | Pk  | 34.8           | -28.1        | 11.5         | -50.17                  | -13   | -37.17      | V        |
| 5.583                   | -68.15              | Pk  | 34.9           | -28.1        | 10.7         | -50.65                  | -13   | -37.65      | H        |
| 7.392                   | -70.92              | Pk  | 35.6           | -24.8        | 10.5         | -49.62                  | -13   | -36.62      | H        |
| 7.397                   | -70.61              | Pk  | 35.6           | -24.7        | 10.9         | -48.81                  | -13   | -35.81      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.719                   | -67.14              | Pk  | 33.3           | -29.9        | 11.1         | -52.64                  | -13   | -39.64      | V        |
| 3.742                   | -66.75              | Pk  | 33.4           | -29.9        | 11.2         | -52.05                  | -13   | -39.05      | H        |
| 5.612                   | -68.49              | Pk  | 34.9           | -28.1        | 10.8         | -50.89                  | -13   | -37.89      | V        |
| 5.680                   | -67.74              | Pk  | 34.8           | -27.7        | 10.4         | -50.24                  | -13   | -37.24      | H        |
| 7.189                   | -76.3               | Pk  | 36             | -25          | 10.3         | -55.00                  | -13   | -42.00      | H        |
| 7.202                   | -76.54              | Pk  | 35.9           | -25          | 10.9         | -54.74                  | -13   | -41.74      | V        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |       |             |          |
| 3.725                   | -67.03              | Pk  | 33.4           | -30          | 11.5         | -52.13                  | -13   | -39.13      | V        |
| 3.776                   | -66.76              | Pk  | 33.6           | -29.9        | 11.2         | -51.86                  | -13   | -38.86      | H        |
| 5.540                   | -69.32              | Pk  | 34.8           | -28.2        | 11.2         | -51.52                  | -13   | -38.52      | H        |
| 5.573                   | -68.39              | Pk  | 34.9           | -28          | 10.8         | -50.69                  | -13   | -37.69      | V        |
| 5.573                   | -75.14              | Pk  | 34.9           | -28          | 10.8         | -57.44                  | -13   | -44.44      | V        |
| 7.113                   | -69.82              | Pk  | 36.1           | -25.3        | 10.4         | -48.62                  | -13   | -35.62      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.707                   | -67.14              | Pk  | 33.3           | -29.8        | 11.3         | -52.34                  | -13   | -39.34      | V        |
| 3.725                   | -67.29              | Pk  | 33.4           | -30          | 11.5         | -52.39                  | -13   | -39.39      | H        |
| 5.632                   | -68.43              | Pk  | 34.8           | -28.1        | 10.7         | -51.03                  | -13   | -38.03      | V        |
| 5.658                   | -69.01              | Pk  | 34.8           | -27.9        | 10.8         | -51.31                  | -13   | -38.31      | H        |
| 7.527                   | -70.42              | Pk  | 35.7           | -24.6        | 10.4         | -48.92                  | -13   | -35.92      | H        |
| 7.548                   | -70.87              | Pk  | 35.8           | -24.4        | 11.0         | -48.47                  | -13   | -35.47      | V        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 5/31/19             |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.381                   | -67.53              | Pk  | 32.8           | -30          | 11.6         | -53.13                  | -13   | -40.13      | V        |
| 3.403                   | -67.2               | Pk  | 32.7           | -30.1        | 11.1         | -53.50                  | -13   | -40.50      | H        |
| 5.120                   | -67.41              | Pk  | 34.6           | -28.6        | 10.8         | -50.61                  | -13   | -37.61      | V        |
| 5.137                   | -67.45              | Pk  | 34.6           | -28.6        | 10.9         | -50.55                  | -13   | -37.55      | H        |
| 6.837                   | -70.48              | Pk  | 35.9           | -25.2        | 10.2         | -49.58                  | -13   | -36.58      | H        |
| 6.842                   | -70.52              | Pk  | 35.9           | -25.2        | 10.5         | -49.32                  | -13   | -36.32      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.388                   | -67.17              | Pk  | 32.7           | -30.1        | 11.2         | -53.37                  | -13   | -40.37      | V        |
| 3.405                   | -66.96              | Pk  | 32.7           | -30.2        | 11.1         | -53.36                  | -13   | -40.36      | H        |
| 5.109                   | -67.6               | Pk  | 34.4           | -28.3        | 11.2         | -50.30                  | -13   | -37.30      | V        |
| 5.128                   | -68.09              | Pk  | 34.5           | -28.5        | 10.6         | -51.49                  | -13   | -38.49      | H        |
| 6.837                   | -70.47              | Pk  | 35.9           | -25.2        | 10.3         | -49.47                  | -13   | -36.47      | V        |
| 6.859                   | -69.75              | Pk  | 35.9           | -25.2        | 10.4         | -48.65                  | -13   | -35.65      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.398                   | -67.91              | Pk  | 32.7           | -30.1        | 11.1         | -54.21                  | -13   | -41.21      | V        |
| 3.411                   | -67.75              | Pk  | 32.8           | -30.2        | 11.5         | -53.65                  | -13   | -40.65      | H        |
| 5.113                   | -66.74              | Pk  | 34.4           | -28.4        | 11.1         | -49.64                  | -13   | -36.64      | V        |
| 5.131                   | -67.55              | Pk  | 34.5           | -28.6        | 10.6         | -51.05                  | -13   | -38.05      | H        |
| 6.833                   | -70.78              | Pk  | 35.8           | -25.2        | 10.4         | -49.78                  | -13   | -36.78      | H        |
| 6.837                   | -70.89              | Pk  | 35.9           | -25.2        | 10.3         | -49.89                  | -13   | -36.89      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.727                   | -66.76              | Pk  | 33.4           | -29.9        | 11.4         | -51.86                  | -13   | -38.86      | V        |
| 3.74                    | -66.69              | Pk  | 33.4           | -29.9        | 11.4         | -51.79                  | -13   | -38.79      | H        |
| 5.337                   | -69.54              | Pk  | 35.1           | -28.1        | 10.4         | -52.14                  | -13   | -39.14      | V        |
| 5.393                   | -68.5               | Pk  | 34.9           | -28          | 10.7         | -50.90                  | -13   | -37.90      | H        |
| 6.636                   | -70.86              | Pk  | 36             | -26.1        | 10.9         | -50.06                  | -13   | -37.06      | V        |
| 6.646                   | -70.54              | Pk  | 35.8           | -26          | 10.5         | -50.24                  | -13   | -37.24      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.748                   | -65.78              | Pk  | 33.5           | -29.8        | 11.6         | -50.48                  | -13   | -37.48      | V        |
| 3.754                   | -66.32              | Pk  | 33.5           | -29.6        | 11.6         | -50.82                  | -13   | -37.82      | H        |
| 5.561                   | -68.95              | Pk  | 34.8           | -28.2        | 10.8         | -51.55                  | -13   | -38.55      | V        |
| 5.621                   | -69.29              | Pk  | 34.8           | -28          | 10.4         | -52.09                  | -13   | -39.09      | H        |
| 7.144                   | -70.09              | Pk  | 36.2           | -25.2        | 10.7         | -48.39                  | -13   | -35.39      | V        |
| 7.183                   | -70.2               | Pk  | 36             | -25.1        | 10.4         | -48.90                  | -13   | -35.90      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.415                   | -77.64              | Av  | 32.8           | -30.3        | 11.7         | -63.44                  | -13   | -50.44      | V        |
| 3.686                   | -74.54              | Pk  | 33.2           | -29.8        | 11.7         | -59.44                  | -13   | -46.44      | H        |
| 5.51                    | -69.7               | Pk  | 34.9           | -28.1        | 11.1         | -51.8                   | -13   | -38.8       | V        |
| 5.517                   | -69.11              | Pk  | 34.8           | -28.1        | 11           | -51.41                  | -13   | -38.41      | H        |
| 7.270                   | -70.33              | Pk  | 35.8           | -25          | 10.5         | -49.03                  | -13   | -36.03      | H        |
| 7.291                   | -70.6               | Pk  | 35.8           | -25          | 10.9         | -48.90                  | -13   | -35.90      | V        |

Pk - Peak detector

## 9.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

### 9.3.1. GSM

#### GSM 1900MHz

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12696946     |
| Date:          | 4/29/19      |
| Test Engineer: | 31300        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 1.500                   | -60.41              | Pk  | 27.9           | -32.5        | 12.3         | -52.71                  | -13   | -39.71      | V        |
| 2.702                   | -65.56              | Pk  | 32.4           | -31          | 11.6         | -52.56                  | -13   | -39.56      | V        |
| 4.423                   | -66.34              | Pk  | 33.9           | -29.2        | 11.4         | -50.24                  | -13   | -37.24      | H        |
| 6.00                    | -60.11              | Pk  | 35.4           | -27.3        | 11.3         | -40.71                  | -13   | -27.71      | H        |
| 13.621                  | -70.49              | Pk  | 38.9           | -20.8        | 10.9         | -41.49                  | -13   | -28.49      | V        |
| 13.626                  | -70.26              | Pk  | 38.6           | -20.9        | 11.2         | -41.36                  | -13   | -28.36      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |       |             |          |
| 4.857                   | -66.37              | Pk  | 34.1           | -28.6        | 11.4         | -49.47                  | -13   | -36.47      | H        |
| 1.500                   | -61.54              | Pk  | 27.9           | -32.5        | 12.3         | -53.84                  | -13   | -40.84      | V        |
| 2.500                   | -64.39              | Pk  | 32.4           | -31.5        | 11.6         | -51.89                  | -13   | -38.89      | V        |
| 3.111                   | -66.71              | Pk  | 33             | -30.5        | 11.8         | -52.41                  | -13   | -39.41      | H        |
| 6.000                   | -60.73              | Pk  | 35.4           | -27.3        | 11.3         | -41.33                  | -13   | -28.33      | H        |
| 6.000                   | -64.24              | Pk  | 35.4           | -27.3        | 11.0         | -45.14                  | -13   | -32.14      | V        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.820                   | -59.16              | Pk  | 33.5           | -29.5        | 11.6         | -43.56                  | -13   | -30.56      | H        |
| 1.500                   | -61.7               | Pk  | 27.9           | -32.5        | 12.3         | -54.00                  | -13   | -41.00      | V        |
| 3.820                   | -60.53              | Pk  | 33.5           | -29.5        | 11.4         | -45.13                  | -13   | -32.13      | V        |
| 2.500                   | -62.36              | Pk  | 32.4           | -31.5        | 11.6         | -49.86                  | -13   | -36.86      | V        |
| 3.129                   | -66.95              | Pk  | 33             | -30.6        | 11.6         | -52.95                  | -13   | -39.95      | H        |
| 13.613                  | -71.25              | Pk  | 38.9           | -20.7        | 10.8         | -42.25                  | -13   | -29.25      | H        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12696946      |
| Date:          | 4/29/19       |
| Test Engineer: | 31300         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber B     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 4.848                   | -66.62              | Pk  | 34.1           | -28.7        | 11           | -50.22                  | -13 | -37.22      | H        |
| 10.837                  | -71.93              | Pk  | 37.9           | -20.3        | 10.2         | -44.13                  | -13 | -31.13      | H        |
| 1.500                   | -60.17              | Pk  | 27.9           | -32.5        | 12.3         | -52.47                  | -13 | -39.47      | V        |
| 3.875                   | -65.65              | Pk  | 33.6           | -29.5        | 12.2         | -49.35                  | -13 | -36.35      | V        |
| 2.500                   | -62.04              | Pk  | 32.4           | -31.5        | 11.7         | -49.44                  | -13 | -36.44      | V        |
| 3.206                   | -66.41              | Pk  | 33             | -30.7        | 11.8         | -52.31                  | -13 | -39.31      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 2.765                   | -66                 | Pk  | 32.4           | -31.1        | 12.3         | -52.4                   | -13 | -39.4       | H        |
| 3.898                   | -65.84              | Pk  | 33.6           | -29.4        | 11.1         | -50.54                  | -13 | -37.54      | H        |
| 1.500                   | -60.8               | Pk  | 27.9           | -32.5        | 12.3         | -53.1                   | -13 | -40.1       | V        |
| 2.500                   | -61.92              | Pk  | 32.4           | -31.5        | 11.6         | -49.42                  | -13 | -36.42      | V        |
| 6.500                   | -64.16              | Pk  | 35.5           | -26          | 10.9         | -43.76                  | -13 | -30.76      | H        |
| 9.719                   | -71.07              | Pk  | 36.9           | -22.3        | 11           | -45.47                  | -13 | -32.47      | V        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.819                   | -58.07              | Pk  | 33.5           | -29.5        | 11.6         | -42.47                  | -13 | -29.47      | H        |
| 5.032                   | -65.87              | Pk  | 34.1           | -28.8        | 11.1         | -49.47                  | -13 | -36.47      | H        |
| 7.252                   | -68.97              | Pk  | 35.6           | -24.9        | 10.7         | -47.57                  | -13 | -34.57      | H        |
| 1.500                   | -60.46              | Pk  | 27.9           | -32.5        | 12.4         | -52.66                  | -13 | -39.66      | V        |
| 3.820                   | -58.35              | Pk  | 33.5           | -29.5        | 11.4         | -42.95                  | -13 | -29.95      | V        |
| 2.500                   | -62.77              | Pk  | 32.4           | -31.5        | 11.6         | -50.27                  | -13 | -37.27      | V        |

Pk - Peak detector

### 9.3.2. WCDMA

#### WCDMA BAND 2

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 6/1/19              |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.693                   | -66.59              | Pk  | 33.2           | -29.7        | 11.6         | -51.49                  | -13   | -38.49      | V        |
| 3.702                   | -66.83              | Pk  | 33.2           | -29.8        | 11.2         | -52.23                  | -13   | -39.23      | H        |
| 5.530                   | -68.67              | Pk  | 34.8           | -27.9        | 11.4         | -50.37                  | -13   | -37.37      | V        |
| 5.540                   | -68.73              | Pk  | 34.8           | -28.2        | 11.2         | -50.93                  | -13   | -37.93      | H        |
| 7.363                   | -70.32              | Pk  | 35.7           | -24.6        | 11.3         | -47.92                  | -13   | -34.92      | V        |
| 7.394                   | -70.53              | Pk  | 35.6           | -24.7        | 10.6         | -49.03                  | -13   | -36.03      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.411                   | -68.19              | Pk  | 32.8           | -30.2        | 11.3         | -54.29                  | -13   | -41.29      | V        |
| 3.428                   | -67.5               | Pk  | 32.8           | -30.1        | 12           | -52.80                  | -13   | -39.80      | H        |
| 5.157                   | -67.73              | Pk  | 34.6           | -28.6        | 11.3         | -50.43                  | -13   | -37.43      | V        |
| 5.173                   | -68.22              | Pk  | 34.6           | -28.5        | 11.5         | -50.62                  | -13   | -37.62      | H        |
| 6.828                   | -71.09              | Pk  | 35.8           | -25.1        | 10.8         | -49.59                  | -13   | -36.59      | V        |
| 6.835                   | -70.31              | Pk  | 35.9           | -25.2        | 10.3         | -49.31                  | -13   | -36.31      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.604                   | -66.34              | Pk  | 33.1           | -29.9        | 11           | -52.14                  | -13   | -39.14      | V        |
| 3.615                   | -67.53              | Pk  | 33.2           | -29.7        | 11.1         | -52.93                  | -13   | -39.93      | H        |
| 5.172                   | -68.12              | Pk  | 34.6           | -28.5        | 11.4         | -50.62                  | -13   | -37.62      | V        |
| 5.233                   | -68.76              | Pk  | 34.7           | -28.3        | 11.3         | -51.06                  | -13   | -38.06      | H        |
| 6.957                   | -70.97              | Pk  | 35.9           | -25.1        | 10.2         | -49.97                  | -13   | -36.97      | H        |
| 6.987                   | -70.44              | Pk  | 36             | -25.2        | 10.9         | -48.74                  | -13   | -35.74      | V        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/2/19             |
| Test Engineer: | 39006              |
| Configuration: | EUT only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.735                   | -66.15              | Pk  | 33.4           | -29.9        | 11.7         | -50.95                  | -13   | -37.95      | V        |
| 3.745                   | -66.56              | Pk  | 33.4           | -29.9        | 11.2         | -51.86                  | -13   | -38.86      | H        |
| 5.573                   | -68.43              | Pk  | 34.9           | -28.1        | 10.8         | -50.83                  | -13   | -37.83      | H        |
| 5.582                   | -68.14              | Pk  | 34.9           | -28          | 10.8         | -50.44                  | -13   | -37.44      | V        |
| 7.390                   | -71.68              | Pk  | 35.6           | -24.7        | 10.8         | -49.98                  | -13   | -36.98      | V        |
| 7.394                   | -70.82              | Pk  | 35.6           | -24.7        | 10.6         | -49.32                  | -13   | -36.32      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.639                   | -67.24              | Pk  | 33.2           | -29.6        | 11.3         | -52.34                  | -13   | -39.34      | V        |
| 3.673                   | -67.22              | Pk  | 33.2           | -29.9        | 11.6         | -52.32                  | -13   | -39.32      | H        |
| 5.592                   | -68.92              | Pk  | 34.9           | -28          | 10.9         | -51.12                  | -13   | -38.12      | V        |
| 5.593                   | -68.80              | Pk  | 34.9           | -28          | 10.7         | -51.20                  | -13   | -38.20      | H        |
| 7.399                   | -71.96              | Pk  | 35.7           | -24.6        | 10.6         | -50.26                  | -13   | -37.26      | H        |
| 7.403                   | -71.05              | Pk  | 35.7           | -24.7        | 10.8         | -49.25                  | -13   | -36.25      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.714                   | -66.53              | Pk  | 33.3           | -29.9        | 11           | -52.13                  | -13   | -39.13      | V        |
| 3.730                   | -66.27              | Pk  | 33.4           | -29.9        | 11.2         | -51.57                  | -13   | -38.57      | H        |
| 5.543                   | -68.63              | Pk  | 34.8           | -28.1        | 11.1         | -50.83                  | -13   | -37.83      | V        |
| 5.556                   | -67.98              | Pk  | 34.8           | -28          | 10.8         | -50.38                  | -13   | -37.38      | H        |
| 7.444                   | -70.81              | Pk  | 35.7           | -24.6        | 11.2         | -48.51                  | -13   | -35.51      | V        |
| 7.457                   | -71.32              | Pk  | 35.7           | -24.7        | 10.5         | -49.82                  | -13   | -36.82      | H        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 6/2/19              |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.418                   | -77.44              | Pk  | 32.8           | -30.3        | 11.8         | -63.14                  | -13   | -50.14      | V        |
| 3.446                   | -68.00              | Pk  | 32.7           | -30.2        | 11.6         | -53.90                  | -13   | -40.90      | H        |
| 5.264                   | -68.63              | Pk  | 34.8           | -28          | 10.8         | -51.03                  | -13   | -38.03      | V        |
| 5.273                   | -68.71              | Pk  | 34.9           | -27.9        | 11.4         | -50.31                  | -13   | -37.31      | H        |
| 6.964                   | -70.32              | Pk  | 35.8           | -25.1        | 10.7         | -48.92                  | -13   | -35.92      | V        |
| 6.999                   | -70.67              | Pk  | 35.9           | -25.1        | 10.5         | -49.37                  | -13   | -36.37      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.351                   | -66.9               | Pk  | 32.8           | -30.1        | 10.7         | -53.50                  | -13   | -40.50      | H        |
| 3.357                   | -68.27              | Pk  | 32.8           | -30.1        | 11.6         | -53.97                  | -13   | -40.97      | V        |
| 5.147                   | -68.49              | Pk  | 34.5           | -28.6        | 11.2         | -51.39                  | -13   | -38.39      | V        |
| 5.158                   | -67.85              | Pk  | 34.5           | -28.6        | 11.3         | -50.65                  | -13   | -37.65      | H        |
| 6.827                   | -70.98              | Pk  | 35.8           | -25.1        | 10.6         | -49.68                  | -13   | -36.68      | H        |
| 6.838                   | -70.81              | Pk  | 35.9           | -25.2        | 10.3         | -49.81                  | -13   | -36.81      | V        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.468                   | -68.43              | Pk  | 32.8           | -30.2        | 11.2         | -54.63                  | -13   | -41.63      | H        |
| 3.469                   | -68.22              | Pk  | 32.8           | -30.3        | 11.6         | -54.12                  | -13   | -41.12      | V        |
| 5.080                   | -68.51              | Pk  | 34.4           | -28.7        | 10.5         | -52.31                  | -13   | -39.31      | H        |
| 5.103                   | -67.83              | Pk  | 34.5           | -28.4        | 11.4         | -50.33                  | -13   | -37.33      | V        |
| 6.836                   | -75.65              | Pk  | 35.9           | -25.2        | 10.3         | -54.65                  | -13   | -41.65      | V        |
| 6.855                   | -70.06              | Pk  | 35.8           | -25.3        | 10.3         | -49.26                  | -13   | -36.26      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/1/19             |
| Test Engineer: | 39006              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.415                   | -68.92              | Pk  | 32.8           | -30.3        | 11.7         | -54.72                  | -13   | -41.72      | V        |
| 3.415                   | -79.41              | Pk  | 32.8           | -30.3        | 11.7         | -65.21                  | -13   | -52.21      | V        |
| 3.450                   | -68.86              | Pk  | 32.8           | -30.1        | 11.5         | -54.66                  | -13   | -41.66      | H        |
| 5.212                   | -67.8               | Pk  | 34.7           | -28.3        | 11.3         | -50.10                  | -13   | -37.10      | H        |
| 6.634                   | -75.87              | Pk  | 36             | -26.1        | 10.8         | -55.17                  | -13   | -42.17      | V        |
| 6.699                   | -69.92              | Pk  | 35.9           | -25.8        | 10.4         | -49.42                  | -13   | -36.42      | H        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.491                   | -68.02              | Pk  | 33.1           | -30.2        | 11.8         | -53.32                  | -13   | -40.32      | V        |
| 3.532                   | -68.27              | Pk  | 33.1           | -30.3        | 11           | -54.47                  | -13   | -41.47      | H        |
| 5.092                   | -67.7               | Pk  | 34.4           | -28.5        | 11.1         | -50.70                  | -13   | -37.70      | V        |
| 5.109                   | -68.4               | Pk  | 34.4           | -28.3        | 11.3         | -51.00                  | -13   | -38.00      | H        |
| 6.904                   | -70.84              | Pk  | 35.9           | -25          | 10           | -49.94                  | -13   | -36.94      | H        |
| 6.911                   | -71.39              | Pk  | 36             | -25.2        | 10.5         | -50.09                  | -13   | -37.09      | V        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.407                   | -67.74              | Pk  | 32.8           | -30.2        | 11.3         | -53.84                  | -13   | -40.84      | V        |
| 3.432                   | -68.63              | Pk  | 32.8           | -30.1        | 11.8         | -54.13                  | -13   | -41.13      | H        |
| 5.117                   | -67.9               | Pk  | 34.5           | -28.5        | 10.9         | -51.00                  | -13   | -38.00      | V        |
| 5.131                   | -68.22              | Pk  | 34.5           | -28.6        | 10.6         | -51.72                  | -13   | -38.72      | H        |
| 6.810                   | -70.38              | Pk  | 35.8           | -25.5        | 10.2         | -49.88                  | -13   | -36.88      | H        |
| 6.814                   | -71.25              | Pk  | 35.8           | -25.4        | 10.6         | -50.25                  | -13   | -37.25      | V        |

Pk - Peak detector

## 9.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

### 9.4.1. GSM

#### GSM 1900MHz

|                |              |
|----------------|--------------|
| Company:       |              |
| Project #:     | 12696946     |
| Date:          | 6/1/19       |
| Test Engineer: | 12501        |
| Configuration: | EUT Only     |
| Mode:          | GSM1900 GPRS |
| Chamber #:     | Chamber B    |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.701                   | -66.84              | Pk  | 33.2           | -29.7        | 11.2         | -52.14                  | -13   | -39.14      | H        |
| 7.391                   | -71.08              | Pk  | 35.6           | -24.8        | 10.5         | -49.78                  | -13   | -36.78      | H        |
| 3.682                   | -67.05              | Pk  | 33.2           | -29.9        | 11.8         | -51.95                  | -13   | -38.95      | V        |
| 7.406                   | -70.76              | Pk  | 35.7           | -24.7        | 10.7         | -49.06                  | -13   | -36.06      | V        |
| 5.530                   | -68.95              | Pk  | 34.8           | -27.9        | 11.4         | -50.65                  | -13   | -37.65      | V        |
| 5.535                   | -68.37              | Pk  | 34.8           | -28          | 11.3         | -50.27                  | -13   | -37.27      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |       |             |          |
| 3.753                   | -66.09              | Pk  | 33.5           | -29.6        | 11.7         | -50.49                  | -13   | -37.49      | H        |
| 7.533                   | -70.82              | Pk  | 35.8           | -24.5        | 10.5         | -49.02                  | -13   | -36.02      | H        |
| 3.746                   | -65.52              | Pk  | 33.5           | -29.9        | 11.4         | -50.52                  | -13   | -37.52      | V        |
| 7.500                   | -70.64              | Pk  | 35.7           | -24.5        | 11.0         | -48.44                  | -13   | -35.44      | V        |
| 5.623                   | -68.22              | Pk  | 34.8           | -28          | 10.5         | -50.92                  | -13   | -37.92      | V        |
| 5.641                   | -67.89              | Pk  | 34.9           | -28          | 10.7         | -50.29                  | -13   | -37.29      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |       |             |          |
| 3.817                   | -67.06              | Pk  | 33.7           | -29.5        | 11.6         | -51.26                  | -13   | -38.26      | H        |
| 7.623                   | -70.44              | Pk  | 35.8           | -24.4        | 10.8         | -48.24                  | -13   | -35.24      | H        |
| 3.807                   | -66.35              | Pk  | 33.7           | -29.4        | 11.3         | -50.75                  | -13   | -37.75      | V        |
| 7.572                   | -80.3               | Pk  | 35.8           | -24.3        | 10.9         | -57.90                  | -13   | -44.90      | V        |
| 5.697                   | -68.56              | Pk  | 34.8           | -27.7        | 10.5         | -50.96                  | -13   | -37.96      | V        |
| 5.716                   | -69.06              | Pk  | 35             | -27.5        | 10.5         | -51.06                  | -13   | -38.06      | H        |

Pk - Peak detector

|                |               |
|----------------|---------------|
| Company:       |               |
| Project #:     | 12696946      |
| Date:          | 6/26/19       |
| Test Engineer: | 12501         |
| Configuration: | EUT Only      |
| Mode:          | GSM1900 EGPRS |
| Chamber #:     | Chamber B     |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-----|-------------|----------|
| Low Channel, 1850.2MHz  |                     |     |                |              |              |                         |     |             |          |
| 3.705                   | -66.57              | Pk  | 33.3           | -29.9        | 11.2         | -51.97                  | -13 | -38.97      | H        |
| 7.474                   | -71.52              | Pk  | 35.8           | -24.6        | 10.6         | -49.72                  | -13 | -36.72      | H        |
| 3.694                   | -65.75              | Pk  | 33.2           | -29.7        | 11.7         | -50.55                  | -13 | -37.55      | V        |
| 3.694                   | -70.48              | Pk  | 33.2           | -29.7        | 11.7         | -55.28                  | -13 | -42.28      | V        |
| 7.469                   | -70.36              | Pk  | 35.7           | -24.7        | 10.6         | -48.76                  | -13 | -35.76      | V        |
| 5.551                   | -68.49              | Pk  | 34.8           | -28.1        | 10.8         | -50.99                  | -13 | -37.99      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |     |             |          |
| 3.758                   | -66.12              | Pk  | 33.5           | -29.7        | 11.5         | -50.82                  | -13 | -37.82      | H        |
| 7.516                   | -71.43              | Pk  | 35.7           | -24.5        | 10.5         | -49.73                  | -13 | -36.73      | H        |
| 3.766                   | -66.79              | Pk  | 33.6           | -29.7        | 11.2         | -51.69                  | -13 | -38.69      | V        |
| 7.521                   | -70.85              | Pk  | 35.7           | -24.5        | 10.6         | -49.05                  | -13 | -36.05      | V        |
| 5.632                   | -68.37              | Pk  | 34.8           | -28.1        | 10.7         | -50.97                  | -13 | -37.97      | V        |
| 5.638                   | -68.32              | Pk  | 34.8           | -28.1        | 10.8         | -50.82                  | -13 | -37.82      | H        |
| High Channel, 1909.8MHz |                     |     |                |              |              |                         |     |             |          |
| 3.815                   | -66.01              | Pk  | 33.7           | -29.5        | 11.5         | -50.31                  | -13 | -37.31      | H        |
| 7.616                   | -70.19              | Pk  | 35.7           | -24.4        | 10.9         | -47.99                  | -13 | -34.99      | H        |
| 3.815                   | -66.52              | Pk  | 33.7           | -29.5        | 11.3         | -51.02                  | -13 | -38.02      | V        |
| 7.590                   | -73.88              | Pk  | 35.7           | -24.4        | 10.7         | -51.88                  | -13 | -38.88      | V        |
| 5.711                   | -68.99              | Pk  | 34.9           | -27.6        | 10.6         | -51.09                  | -13 | -38.09      | H        |
| 5.724                   | -69.38              | Pk  | 34.9           | -27.4        | 10.6         | -51.28                  | -13 | -38.28      | V        |

Pk - Peak detector

## 9.4.2. WCDMA

### WCDMA BAND 2

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 6/1/19              |
| Test Engineer: | 12501               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 2 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.700                   | -65.48              | Pk  | 33.2           | -29.6        | 11.2         | -50.68                  | -13   | -37.68      | H        |
| 7.429                   | -70.42              | Pk  | 35.7           | -24.6        | 10.8         | -48.52                  | -13   | -35.52      | H        |
| 3.694                   | -66.65              | Pk  | 33.2           | -29.7        | 11.7         | -51.45                  | -13   | -38.45      | V        |
| 7.393                   | -71.38              | Pk  | 35.6           | -24.8        | 10.8         | -49.78                  | -13   | -36.78      | V        |
| 5.525                   | -68.45              | Pk  | 34.8           | -28          | 11.3         | -50.35                  | -13   | -37.35      | V        |
| 5.547                   | -68.24              | Pk  | 34.8           | -28.1        | 10.9         | -50.64                  | -13   | -37.64      | H        |
| Mid Channel, 1880MHz    |                     |     |                |              |              |                         |       |             |          |
| 3.753                   | -66.13              | Pk  | 33.5           | -29.6        | 11.7         | -50.53                  | -13   | -37.53      | H        |
| 7.528                   | -71.49              | Pk  | 35.8           | -24.5        | 10.5         | -49.69                  | -13   | -36.69      | H        |
| 3.758                   | -75.58              | Pk  | 33.5           | -29.7        | 11.1         | -60.68                  | -13   | -47.68      | V        |
| 7.551                   | -71.18              | Pk  | 35.8           | -24.4        | 11           | -48.78                  | -13   | -35.78      | V        |
| 5.603                   | -68.33              | Pk  | 34.9           | -28          | 10.5         | -50.93                  | -13   | -37.93      | H        |
| 5.620                   | -76.22              | Pk  | 34.8           | -28          | 10.6         | -58.82                  | -13   | -45.82      | V        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.812                   | -66.08              | Pk  | 33.7           | -29.4        | 11.2         | -50.58                  | -13   | -37.58      | H        |
| 7.520                   | -71.08              | Pk  | 35.7           | -24.5        | 10.4         | -49.48                  | -13   | -36.48      | H        |
| 3.801                   | -66.86              | Pk  | 33.7           | -29.6        | 11.4         | -51.36                  | -13   | -38.36      | V        |
| 7.508                   | -71.46              | Pk  | 35.8           | -24.5        | 11           | -49.16                  | -13   | -36.16      | V        |
| 5.715                   | -69.21              | Pk  | 34.9           | -27.5        | 10.6         | -51.21                  | -13   | -38.21      | V        |
| 5.727                   | -69.48              | Pk  | 34.8           | -27.4        | 10.5         | -51.58                  | -13   | -38.58      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/2/19             |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 2 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1852.4MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.633                   | -68.26              | Pk  | 33.2           | -29.5        | 11.1         | -53.46                  | -13   | -40.46      | V        |
| 3.649                   | -66.79              | Pk  | 33.2           | -29.8        | 10.4         | -52.99                  | -13   | -39.99      | H        |
| 5.505                   | -68.55              | Pk  | 34.9           | -28          | 11.1         | -50.55                  | -13   | -37.55      | V        |
| 5.521                   | -68.93              | Pk  | 34.8           | -28.1        | 11           | -51.23                  | -13   | -38.23      | H        |
| 7.375                   | -71.28              | Pk  | 35.7           | -24.5        | 11.4         | -48.68                  | -13   | -35.68      | V        |
| 7.387                   | -71.13              | Pk  | 35.7           | -24.6        | 10.7         | -49.33                  | -13   | -36.33      | H        |
| Mid Channel, 1880.0MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.711                   | -67.04              | Pk  | 33.3           | -29.8        | 11.2         | -52.34                  | -13   | -39.34      | V        |
| 3.737                   | -66.62              | Pk  | 33.4           | -29.9        | 11.6         | -51.52                  | -13   | -38.52      | H        |
| 5.550                   | -68.82              | Pk  | 34.8           | -28.1        | 11           | -51.12                  | -13   | -38.12      | V        |
| 5.560                   | -68.77              | Pk  | 34.8           | -28.2        | 10.6         | -51.57                  | -13   | -38.57      | H        |
| 7.370                   | -70.56              | Pk  | 35.7           | -24.7        | 11.5         | -48.06                  | -13   | -35.06      | V        |
| 7.392                   | -71.23              | Pk  | 35.6           | -24.8        | 10.5         | -49.93                  | -13   | -36.93      | H        |
| High Channel, 1907.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.686                   | -66.7               | Pk  | 33.2           | -29.8        | 11.9         | -51.40                  | -13   | -38.40      | V        |
| 3.709                   | -66.4               | Pk  | 33.3           | -29.8        | 11.2         | -51.70                  | -13   | -38.70      | H        |
| 5.528                   | -69.03              | Pk  | 34.8           | -28          | 11.3         | -50.93                  | -13   | -37.93      | V        |
| 5.553                   | -69.34              | Pk  | 34.8           | -28          | 10.8         | -51.74                  | -13   | -38.74      | H        |
| 7.375                   | -71.01              | Pk  | 35.7           | -24.5        | 11.4         | -48.41                  | -13   | -35.41      | V        |
| 7.398                   | -70.61              | Pk  | 35.7           | -24.6        | 10.6         | -48.91                  | -13   | -35.91      | H        |

Pk - Peak detector

**WCDMA BAND 4**

|                |                     |
|----------------|---------------------|
| Company:       |                     |
| Project #:     | 12696946            |
| Date:          | 6/2/19              |
| Test Engineer: | 39006               |
| Configuration: | EUT Only            |
| Mode:          | WCDMA Band 4 Rel 99 |
| Chamber #:     | Chamber B           |

| Frequency (GHz)         | Meter Reading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|---------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Only Channel, 1712.4MHz |                     |     |                |              |              |                         |       |             |          |
| 3.366                   | -68.13              | Pk  | 32.8           | -30.1        | 11.2         | -54.23                  | -13   | -41.23      | H        |
| 3.370                   | -67.65              | Pk  | 32.8           | -30.1        | 11.7         | -53.25                  | -13   | -40.25      | V        |
| 5.169                   | -68.51              | Pk  | 34.5           | -28.5        | 11.6         | -50.91                  | -13   | -37.91      | V        |
| 5.209                   | -68.26              | Pk  | 34.7           | -28.4        | 11.2         | -50.76                  | -13   | -37.76      | H        |
| 6.839                   | -70.86              | Pk  | 35.9           | -25.2        | 10.3         | -49.86                  | -13   | -36.86      | H        |
| 6.864                   | -70.05              | Pk  | 35.9           | -25.1        | 10.9         | -48.35                  | -13   | -35.35      | V        |
| Mid Channel, 1732.6MHz  |                     |     |                |              |              |                         |       |             |          |
| 3.534                   | -69.4               | Pk  | 33.1           | -30.3        | 11.4         | -55.20                  | -13   | -42.20      | V        |
| 3.557                   | -67.89              | Pk  | 33             | -30.1        | 10.9         | -54.09                  | -13   | -41.09      | H        |
| 5.154                   | -67.89              | Pk  | 34.6           | -28.6        | 11.3         | -50.59                  | -13   | -37.59      | V        |
| 5.163                   | -68.1               | Pk  | 34.5           | -28.5        | 11.6         | -50.50                  | -13   | -37.50      | H        |
| 6.981                   | -70.57              | Pk  | 36             | -25.3        | 10.6         | -49.27                  | -13   | -36.27      | V        |
| 7.010                   | -71.36              | Pk  | 35.9           | -25          | 10.6         | -49.86                  | -13   | -36.86      | H        |
| High Channel, 1752.6MHz |                     |     |                |              |              |                         |       |             |          |
| 3.487                   | -68.92              | Pk  | 33             | -30.1        | 11.4         | -54.62                  | -13   | -41.62      | V        |
| 3.519                   | -69.27              | Pk  | 33.2           | -30.2        | 11.3         | -54.97                  | -13   | -41.97      | H        |
| 5.144                   | -67.78              | Pk  | 34.5           | -28.6        | 11.3         | -50.58                  | -13   | -37.58      | V        |
| 5.159                   | -67.65              | Pk  | 34.5           | -28.5        | 11.4         | -50.25                  | -13   | -37.25      | H        |
| 6.687                   | -70.71              | Pk  | 35.9           | -25.9        | 11           | -49.71                  | -13   | -36.71      | V        |
| 6.715                   | -70.89              | Pk  | 35.9           | -25.8        | 10.1         | -50.69                  | -13   | -37.69      | H        |

Pk - Peak detector

|                |                    |
|----------------|--------------------|
| Company:       |                    |
| Project #:     | 12696946           |
| Date:          | 6/2/19             |
| Test Engineer: | 23567              |
| Configuration: | EUT Only           |
| Mode:          | WCDMA Band 4 HSDPA |
| Chamber #:     | Chamber B          |

| Frequency (GHz)         | MeterReading (dBm) | Det | AF T344 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LIMIT | Margin (dB) | Polarity |
|-------------------------|--------------------|-----|----------------|--------------|--------------|-------------------------|-------|-------------|----------|
| Low Channel, 1712.4MHz  |                    |     |                |              |              |                         |       |             |          |
| 3.392                   | -67.65             | Pk  | 32.7           | -30          | 11.2         | -53.75                  | -13   | -40.75      | V        |
| 3.419                   | -68.44             | Pk  | 32.8           | -30.2        | 11.9         | -53.94                  | -13   | -40.94      | H        |
| 5.099                   | -67.07             | Pk  | 34.5           | -28.5        | 11.4         | -49.67                  | -13   | -36.67      | V        |
| 5.119                   | -68.26             | Pk  | 34.6           | -28.5        | 10.9         | -51.26                  | -13   | -38.26      | H        |
| 6.856                   | -71.28             | Pk  | 35.8           | -25.3        | 10.4         | -50.38                  | -13   | -37.38      | H        |
| 6.856                   | -70.89             | Pk  | 35.8           | -25.3        | 10.7         | -49.69                  | -13   | -36.69      | V        |
| Mid Channel, 1732.6MHz  |                    |     |                |              |              |                         |       |             |          |
| 3.376                   | -68.4              | Pk  | 32.8           | -30.2        | 12           | -53.80                  | -13   | -40.80      | V        |
| 3.392                   | -81.76             | Pk  | 32.7           | -30          | 11.2         | -67.86                  | -13   | -54.86      | H        |
| 4.662                   | -73.21             | Pk  | 34.2           | -29.1        | 10.6         | -57.51                  | -13   | -44.51      | H        |
| 4.718                   | -67.98             | Pk  | 34.1           | -28.9        | 11           | -51.78                  | -13   | -38.78      | V        |
| 6.708                   | -70.68             | Pk  | 35.9           | -25.8        | 10.6         | -49.98                  | -13   | -36.98      | V        |
| 6.733                   | -70.83             | Pk  | 35.9           | -25.9        | 10.2         | -50.63                  | -13   | -37.63      | H        |
| High Channel, 1752.6MHz |                    |     |                |              |              |                         |       |             |          |
| 3.438                   | -68.8              | Pk  | 32.8           | -30.3        | 11.8         | -54.50                  | -13   | -41.50      | V        |
| 3.449                   | -67.52             | Pk  | 32.8           | -30.1        | 11.6         | -53.22                  | -13   | -40.22      | H        |
| 5.166                   | -68.09             | Pk  | 34.5           | -28.5        | 11.6         | -50.49                  | -13   | -37.49      | V        |
| 5.184                   | -69.04             | Pk  | 34.6           | -28.5        | 11           | -51.94                  | -13   | -38.94      | H        |
| 6.887                   | -71.5              | Pk  | 35.8           | -24.8        | 10.8         | -49.70                  | -13   | -36.70      | V        |
| 6.892                   | -71.23             | Pk  | 35.8           | -24.8        | 10.4         | -49.83                  | -13   | -36.83      | H        |

Pk - Peak detector

## 10. SETUP PHOTOS

Please see setup photo report 12607353-EP1V1

**END OF REPORT**